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ABSTRACT

Part of a series of instructor guides designed to support Ohio's ACT Work Keys System, this book is designed for teachers and industry trainers seeking strategies to prepare people to read and interpret workplace graphics. It is for instructors of all subject areas, parents, mentors, and trainers; has skills meant for all learners; supports what instructors are already doing; supplements the curriculum; reflects the format of the ACT Work Keys Systems; and divides instructional strategies and practice problems by Work Keys level. Sections 1-6 provide an overview of the Work Keys System; define "locating information;" explain how to use the book to improve learners' locating information skills; and outline assessment. Sections 7-10 cover locating information--improving to Work Keys levels 3, 4, 5, and 6. Each section focuses on one level and consists of these components: characteristics of that level's graphics; that level's locating information skills; prerequisite skills; graphics descriptions and learning activities; and practice problems with answers. Appendixes include information on locating information resources, information testing resources, and a ready-to-use assessment. (YLB)

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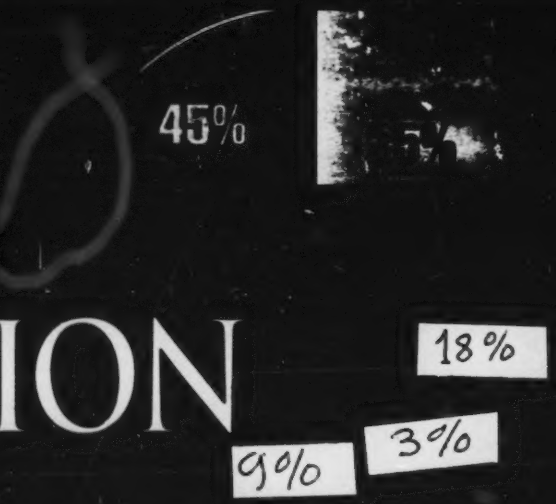

LOCATING INFORMATION

TARGETS FOR LEARNING

READING AND INTERPRETING WORKPLACE GRAPHICS

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Series Overview

Targets for Learning: Locating Information is part of a series of instructor guides designed to support the ACT Work Keys System. Each guide used the information and suggestions from ACT's *Targets for Instruction*. The instructional strategies and practice problems have been patterned after those of the ACT Work Keys System. Gains in skill levels can be measured by Work Keys assessments. The assessment provided in this book is designed to estimate skill levels.

The other books in the series are:

- *Targets for Learning: Applied Mathematics*
- *Targets for Learning: Applied Technology*
- *Targets for Learning: Reading for Information*

These books were written by teachers and industry representatives; piloted and/or reviewed by vocational teachers, applied academics teachers, and industry trainers; and modified to reflect the knowledge gained during the review process. The books are distributed by The Ohio State University's Center on Education and Training for Employment. The sales office can be reached by calling 800/848-4815 or faxing 614/292-1260.

In addition, the Center on Education and Training for Employment provides instruction and coaching to teachers and trainers, which prepares them to effectively use these materials. For further information, contact their National Training Academy directly at 800/848-4815 or 614/292-8300.

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Many people have devoted their time and talents to help make this book a useful resource for educators and trainers who help learners improve their Locating Information skills.

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Thinking Media™ provided several graphics from its KeyTrain™ CD-ROM series, which provides learners with computer-based instruction on Work Keys topics. Additional information about this series is given in Appendix B. Thinking Media gave permission to use the following Locating Information workplace graphics: Practice Problems 5.4, 5.7, 5.9, 5.13, 6.5, 6.6, 6.7, 6.8, 6.9, 6.13, 6.14, 6.15 and Level 5 Practice Test Questions 1, 2, and 3.

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About This Book

Targets for Learning: Locating Information was developed for teachers and industry trainers seeking strategies to prepare people to read and interpret workplace graphics. The following explanation describes the book's uses, goals, and components:

- *Targets for Learning* was written for instructors of **all subject areas**. The kinds of graphics found in the workplace exist in classrooms of all subjects. For example, learners can be instructed to place information in *charts* in math, science, social studies, and communications classes.

- *Targets for Learning* can be used by **parents**, **mentors**, **tutors**, and others who support learning.

- The skills addressed in *Targets for Learning: Locating Information* are meant for **all learners**—not just those who are studying in technical areas (e.g., diversified health occupations, mechanics, manufacturing, business, graphics, construction). At home and at work, almost everyone encounters and needs to locate information.

- *Targets for Learning* **supports what instructors are already doing** by offering ideas and materials for achieving their current goals and objectives. It is not a new program or a new curriculum—it is a resource that complements existing instructional efforts.

- *Targets for Learning* is not meant to be a complete curriculum. Instead, it **supplements the curriculum** by giving instructors a wide variety of practice problems to use as needed. The problems can be used to reinforce basic skills and provide practice in solving problems similar to those found on the Work Keys assessment.

- *Targets for Learning* was designed to reflect the format of the **ACT Work Keys System**, which is described on the following page.

- *Targets for Learning* is presented in a 3-ring binder to **enhance its usefulness** to instructors. Users may wish to:

    - Change the order of the lessons to meet learners' needs and experiences.
    - Add materials from other sources.
    - Include personal notes about the instructional strategies used to teach the concepts and processes involved in Locating Information.

- The instructional strategies and practice problems are **divided by Work Keys level** (i.e., Improving to Levels 3–6).

All of the *Targets for Instruction* books can be purchased through The Ohio State University's Center on Education and Training for Employment. The sales office can be reached by calling 800/848-4815 or faxing 614/292-1260.

Overview of the Work Keys System

The guidelines set forth in the Work Keys System form the structure upon which *Targets for Learning: Locating Information* was developed. Work Keys is a national system for teaching and assessing workplace academic skills in secondary, postsecondary, and adult training programs. It was developed by American College Testing (ACT) to provide educators and employers with a system for measuring the skill levels of employees and students—who are prospective employees. In addition, the Work Keys System gives educators, employers, and learners a common language for understanding and discussing the **skills and skill levels that are required to successfully perform specific jobs**.

Work Keys focuses on eight workplace skill areas: Applied Mathematics, Applied Technology, Reading for Information, Reading, Locating Information, Listening, Observation, and Teamwork. Each skill area is described in detail in a corresponding *Targets for Instruction* book, which are published by ACT.

The Work Keys System has three components:

- **Profiling** uses job analysis to identify the skills and the skill levels that are needed to succeed in *specific jobs or occupations.*
- **Assessments** measure the *individual's* skill levels. Assessments are developed by ACT and administered by schools and Work Keys satellite centers. Adults take the assessments at Work Keys satellite centers, which are usually located in adult vocational full-service centers or community colleges. In addition, some states have vocational students take three or more Work Keys assessments at the beginning of the junior year and/or at the end of the senior year.
- **Instructional support** helps educators and trainers supplement and reinforce their existing curriculum and instruction to address workplace requirements more directly. ACT published the *Targets for Instruction* series to give educators and trainers guidelines for developing effective interventions for learners who need to improve their skill levels. Those guidelines were used by the authors of the *Targets for Learning* instructional materials.

Additional information about Work Keys can be obtained directly from ACT at 800/553-6244.

What is Locating Information?

ACT defines Locating Information as "An employee's skill in using information take from workplace graphics such as diagrams, floor plans, tables, forms, graphs (including bar charts, pie charts, and line graphs), flowcharts, and instrument gauges." Employees use information from one or more related graphics to find, fill in, compare, and summarize information.[1] These graphics are described in the next section.

Locating information is important for **all workers**, not just those in technical occupations. When you stop to think about it, almost every job requires the ability to read charts, graphs, or diagrams.

There are four skill levels for Locating Information, Levels 3–6. These levels do not correspond to the levels of other Work Keys skill areas. Nor do they correspond with school grade levels. The Locating Information skills required of workers at each Work Keys level are listed below.

Many users ask for clarification about the difference between the topics covered in Locating Information and Reading for Information. Because the skills required for each are very different from each other, instructors should understand the difference between them.

- *Locating Information skills involve gleaning and interpreting information found in* graphics.
- *Reading for Information skills involve understanding and interpreting information found in* narratives *(e.g., letters, memorandums, legal documents, manuals).*

When locating information from graphics, readers need to employ many of the skills addressed in the Reading for Information skill set, too.

Locating Information Skill Levels

The following information was summarized from ACT's book, *Targets for Instruction: Locating Information*, which provides more detailed information about each level as well as examples of problems at each level. (*Targets for Learning* users are encouraged to read *Targets for Instruction* to gain additional insights about Work Keys and Locating Information.)

Level 3 graphics are very simple, clear, and straightforward. They include order forms, bar graphs, tables, gauges/dials, floor plans, flowcharts, and diagrams.

Level 3 Locating Information skills:

- ***Find* one or two pieces of information** from a simple graphic.
- ***Fill in* one or two pieces of information** into a simple graphic (usually a form).

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[1] *Targets for Instruction, Locating Information*, p. 16.

Level 4 graphics are more complex than those found at Level 3. However, they are still straightforward. The learner is required to pay attention to detail, and to watch for small variations between or within graphics. Examples of Level 4 graphics include basic order forms, line graphs, standard tables, basic diagrams, flowcharts, instrument gauges, and maps.

Level 4 Locating Information skills:

Level 4 skills include all of the skills addressed at Level 3, plus the following:

- ***Find*** **several pieces of information** from a straightforward graphic.
- ***Summarize*** **and/or** ***compare*** **information and trends** in one straightforward graphic.
- ***Summarize*** **and/or** ***compare*** **information and trends** in more than one straightforward workplace graphic (e.g. a bar chart and a table showing related information).
- ***Determine*** **the relationship** among graphics.

Level 5 graphics are longer and contain more detail than Level 4 graphics. Some of the detail may be easily confused with other information in the same graphic. Furthermore, even short graphics may appear in a format that is complicated and hard to unravel. In addition, both the language and the symbols may be unfamiliar to the majority of the learners because they are technical in nature. The use of decimals and fractional values is common at this level, and both positive and negative values may be included. Unusual perspectives, such as side elevations, may be used.

Level 5 Locating Information skills:

Level 5 skills include all of the skills addressed at Levels 3 and 4, plus the following:

- ***Summarize*** **and/or** ***compare*** **information and trends** in one complex graphic.
- ***Summarize*** **and/or** ***compare*** **information and trends** presented in more than one complex workplace graphic (e.g., a bar chart and a table showing related information).
- ***Sort*** **through distracting information**.

Level 6 graphics contain extremely complex, often long, workplace graphics. As with Level 5 graphics, the tables, forms, maps, blueprints, and diagrams include a considerable amount of detail. Graphs present data that may be confusing or unclear because of the amount of data, the presentation, or both. What makes Level 6 tasks more difficult than Level 5 tasks is that they often involve using multiple graphics, interpreting very technical terminology and/or symbols, completing several steps, and applying numerous criteria. In addition, higher-order thinking skills are used to complete tasks or make decisions.

Level 6 Locating Information skills:

Level 6 skills include all of the skills addressed at previous levels, plus the following:

- ***Make decisions* requiring judgements** based on information presented in complex graphics.
- ***Draw conclusions* requiring judgements** based on information presented in complex graphics.
- ***Make predictions* requiring judgements** based on information presented in complex graphics.
- ***Apply* information to specific situations and *criteria*** using one complex graphic or several related graphics.

The chart on the following page summarizes each Locating Information level.

Important! When planning instruction, keep in mind that the level of a given problem or activity is determined by **both** the *complexity* of the graphic **and** the *skills* needed by learners.

> Example: A practice problem that uses a complex graphic and asks learners to *summarize* information and trends is Level 5. The same graphic can be used for learners who are Improving to Level 6 if they are asked to use *judgements* to *make predictions* or *draw conclusions.*

Locating Information Summary of Levels

	Level 3	Level 4	Level 5	Level 6
What learners need to do with the graphic(s)	• **find** (basic) • **fill in** (basic)	• **find** (more complex) • **fill in** (more complex) • **summarize** and • **compare** information and trends (basic)	• **summarize** and • **compare** information and trends (more complex)	• **decide** • **conclude** • **predict** • **apply** information to situations/ criteria
Number of pieces of information	1 or 2	several	several	several
Complexity of graphics	elementary	straightforward	complicated	complex, less-familiar formats
Terminology	simple, familiar	familiar	may be somewhat technical	may be highly technical
Number of graphics	1	1 or 2	1 or more	usually more than 1

Why Use Graphics?

Graphics can be used to present information *more efficiently* than text. Graphics provide users with a *visual representation* of **ideas**, **processes**, **procedures**, **objects**, or **events**. In addition, graphics can help eliminate redundancy and allow users to **recognize relationships among pieces of information**. These relationships include:

- **Change**

  Example: Bar graphs and line graphs help users quickly note change over time.

- **Comparison**

  Examples: Bar graphs can be used to compare quantities.

  Pie graphs can be used to compare proportions to a whole.

  Tables can be used to compare attributes and understand differences.

- **Arrangement**

  Example: Diagrams, blueprints, maps, layouts, and floor plans show arrangement of specified areas, buildings, or rooms.

- **Procedures**

  Examples: Flowcharts graphically display procedures.

  Charts and forms can graphically display procedures (e.g., instead of using words like *first* and *next*, the placement of information can show order and importance).

- **Quantity**

  Examples: All types of graphs, tables, gauges, and forms can be used to display quantities.

- **Attributes** refer to the characteristics of a person or thing.

  Examples: Forms can be used to show the sizes of items being ordered.

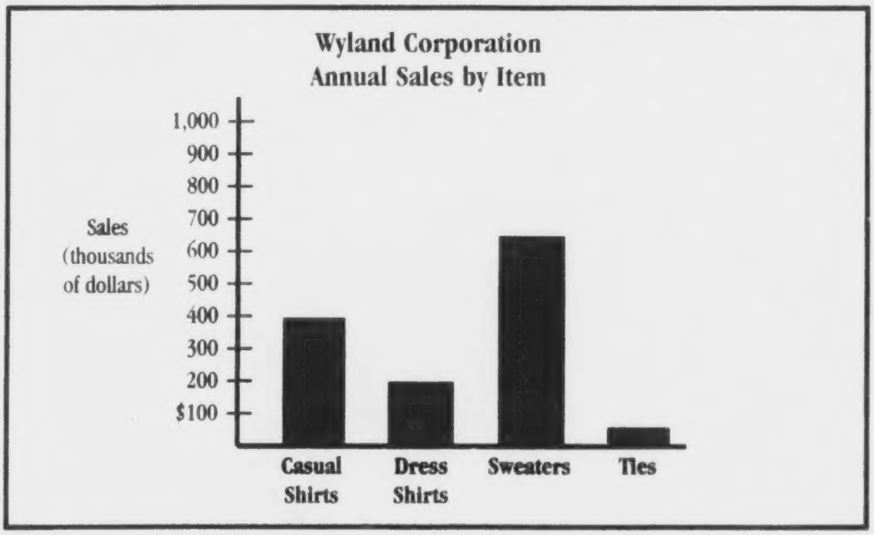
  Tables and pie charts can display the types of items that were sold.

  Pie charts can depict the age groups of people who attended a shareholder meeting.

What Kinds of Graphics Comprise Locating for Information?

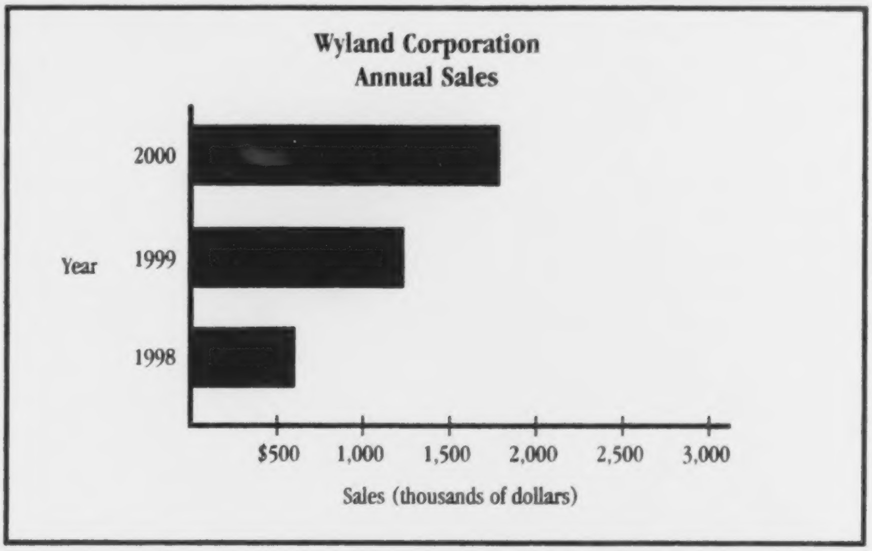
Bar graphs often display *categories of information* across the horizontal axis. The categories are either labeled or referenced by a key. The categories are quantified along the vertical axis—using a *uniform scale*. Note: Graphs can display both positive and negative quantities.

This example provides readers with graphic *comparisons of quantities*:

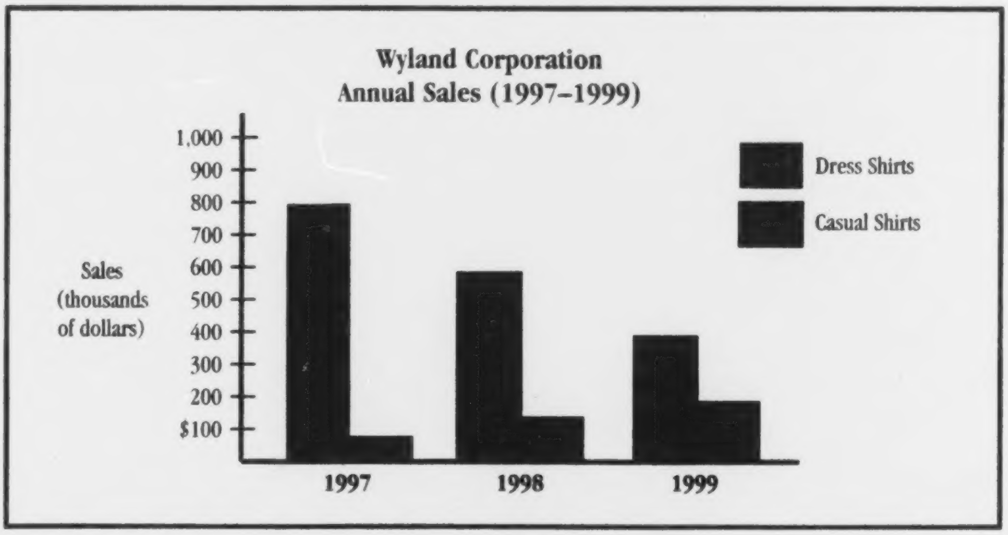


However, some bar graphs use the horizontal axis as the uniform scale and the vertical axis for the categories of information.

This example provides readers with graphic *comparisons* of *quantities over time*:

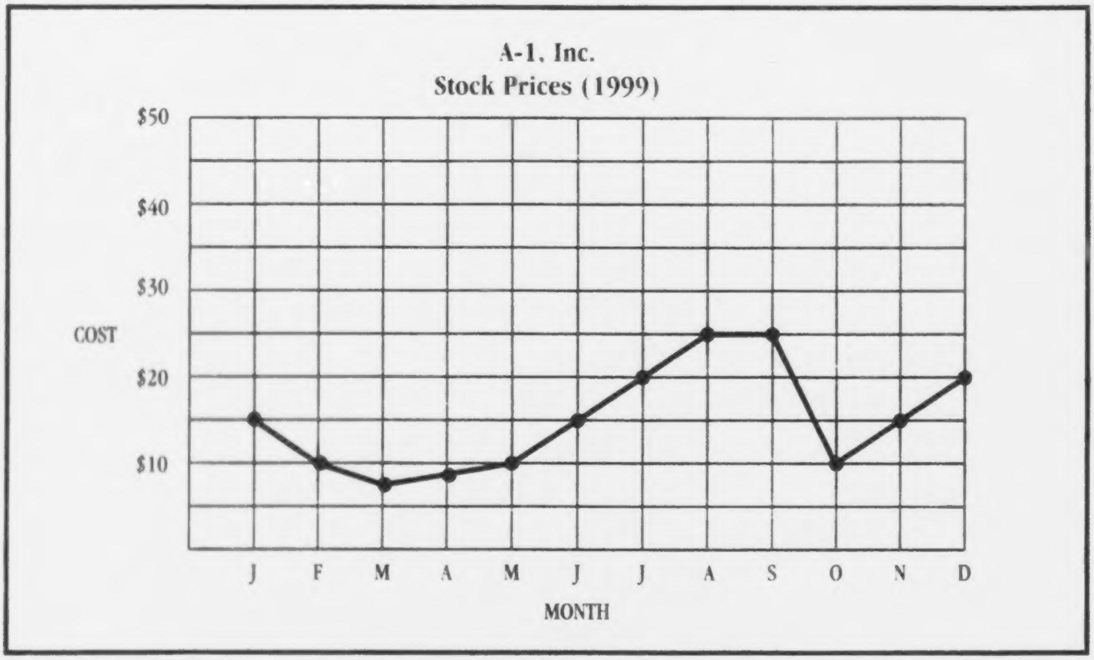


Bar graphs can also show both *change* and *comparisons*, as shown in this example:



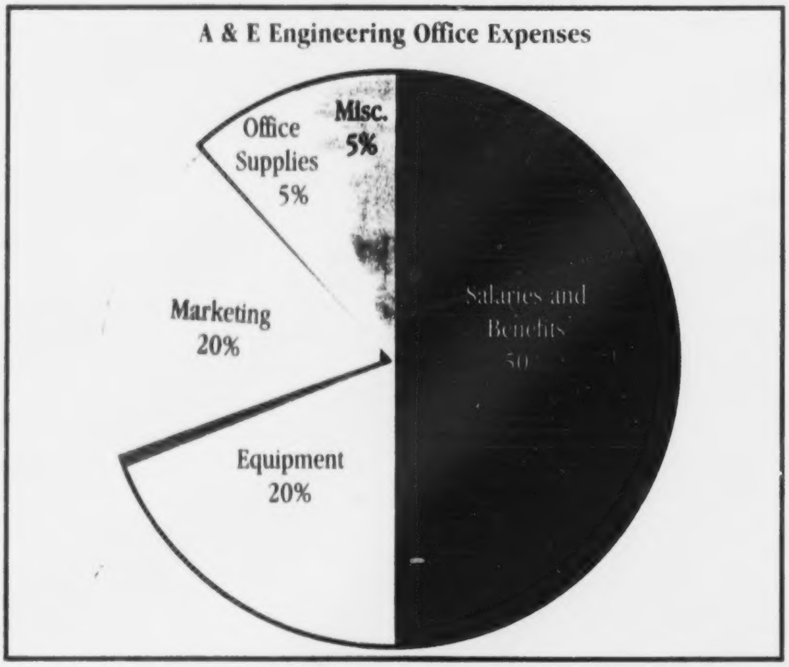
Line graphs use a vertical and a horizontal axis to illustrate pairs of numbers or coordinate points. A key must be provided to make use of information presented in this type of graph. Line graphs are often used to show change (e.g., sales trends, stock prices, and the changing characteristics of the workforce).

This example shows *change over time*:



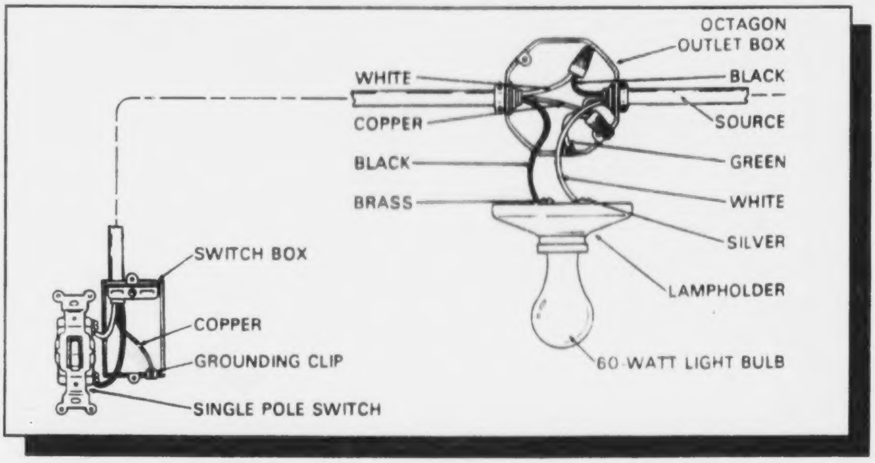
Pie charts are used to illustrate a *whole* that is broken into parts (i.e., proportions). The total of the parts always adds up to 100%.

This example shows how a company's office expenses are allocated:



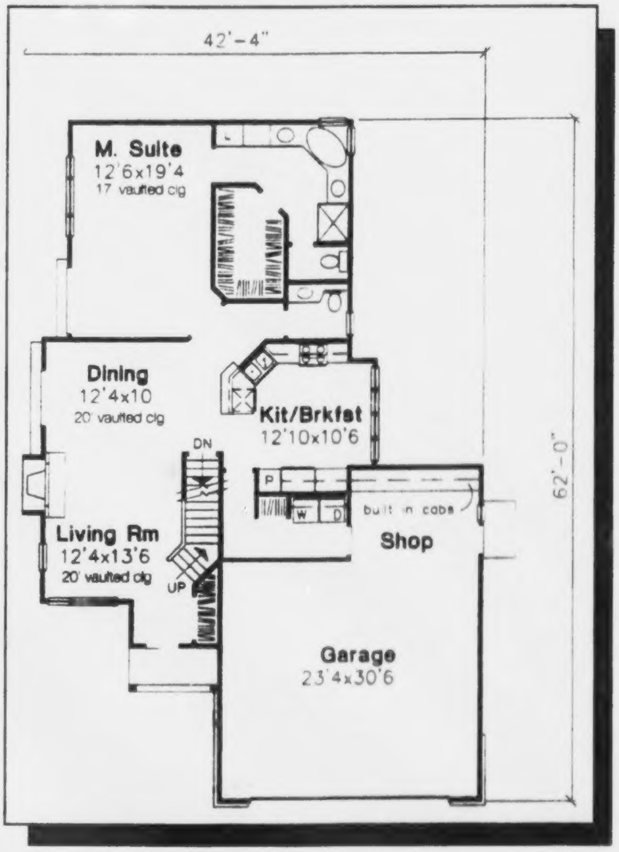
Diagrams show *arrangements* and *relationships* of parts. For example, diagrams can show a building's heating or electrical system, the construction of a machine, or the order of the controls on a panel.

This diagram shows the *relationships* of parts for an electrical wiring system:

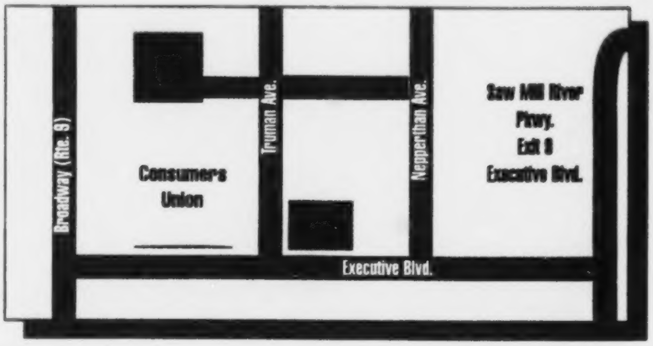

OCTAGON OUTLET BOX
WHITE
BLACK
COPPER
SOURCE
BLACK
GREEN
BRASS
WHITE
SILVER
SWITCH BOX
LAMPHOLDER
COPPER
GROUNDING CLIP
60 WATT LIGHT BULB
SINGLE POLE SWITCH

Maps, layouts, and floor plans are figurative drawings that show the *design* or *arrangement* of a location (e.g., a parcel of land, a building, a room). When needed, a key is used to explain the symbols in such drawings.

This layout shows the *arrangement* of the first floor of a house:

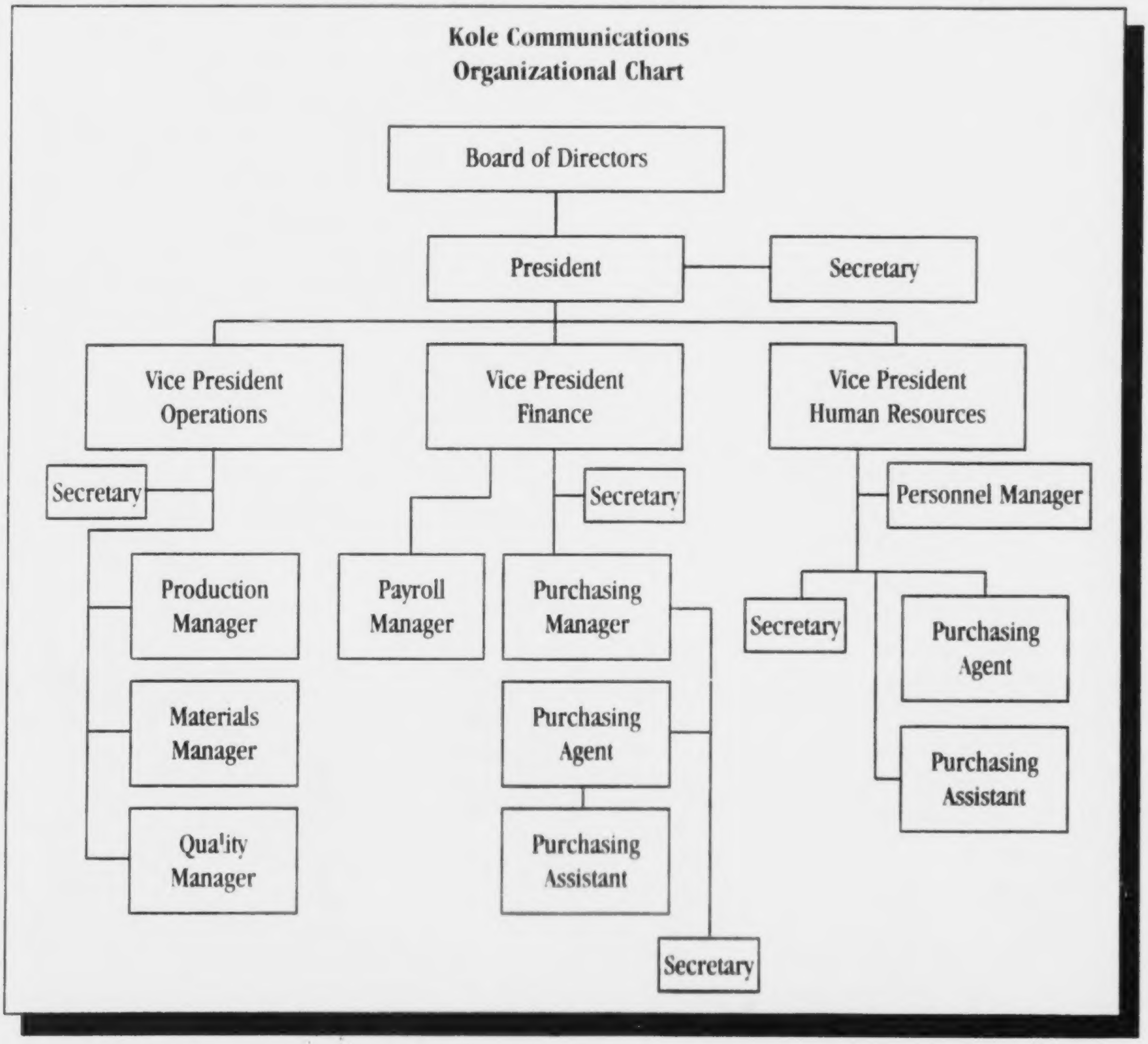

42'-4"
M. Suite
12'6x19'4
17 vaulted clg
Dining
12'4x10
20' vaulted clg
Kit/Brkfst
12'10x10'6
DN
P
W
D
built in cabs
Shop
Living Rm
12'4x13'6
20' vaulted clg
UP
Garage
23'4x30'6
62'-0"

This map shows the *arrangement* of an area (i.e., business site):


Broadway (Rte. 9)
Consumers Union
Truman Ave.
Nepperhan Ave.
Saw Mill River Pkwy. Exit 9 Executive Blvd.
Executive Blvd.

Flowcharts are diagrams that show arrangements of ideas (e.g., a company's organizational chart, a procedure).

This example shows the hierarchical arrangement of a company's organizational structure:

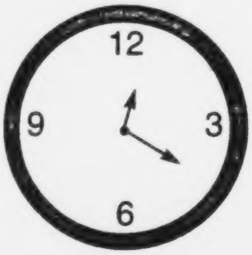

Kole Communications Organizational Chart

Board of Directors
President
Secretary
Vice President Operations
Vice President Finance
Vice President Human Resources
Secretary
Production Manager
Materials Manager
Quality Manager
Secretary
Payroll Manager
Purchasing Manager
Purchasing Agent
Purchasing Assistant
Secretary
Personnel Manager
Secretary
Purchasing Agent
Purchasing Assistant

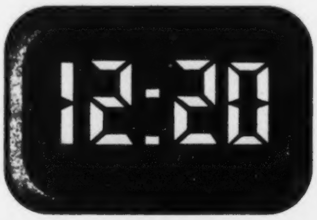
Instrument gauges present a wide variety of workplace information. Information can be displayed on gauges in analog or digital formats—or both. Analog gauges display information on a graduated scale that is in either a linear or nonlinear format. For example, a vehicle's speedometer displays linear information (speed can range from 0 to 120). Nonlinear information is displayed on a clock with hour and minute hands (time is determined by reading both hands).

Gauges can also present information in numerical format. For example, a digital display on a production machine displays numbers representing time and quantity.

These are examples of analog and digital gauges that might be found in the workplace:



analog



digital

Characteristics of analog gauges:

- They usually have a dial and a pointer.
- They sometimes have more than one scale.
- If pointing between the written values on a dial, the reader needs to interpret between the marked points. This requires counting the number of unmarked spaces between the marked points.

Tables contain *data that is arranged in columns and rows.* The format of tables allows users to read, analyze, and find the included information much quicker than they could if it were in text format. Tables are often used to display technical and financial data. They can be used to illustrate quantities, comparisons, change, proportion, and attributes. Note: No one category of information is emphasized in tables.

Instructors can find many examples of tables that can be used in the classroom in home repair guides, gardening books, and car repair manuals—to name but a few resources.

In this table[2], data about foreign currency is *arranged* to help the reader use the information:

---

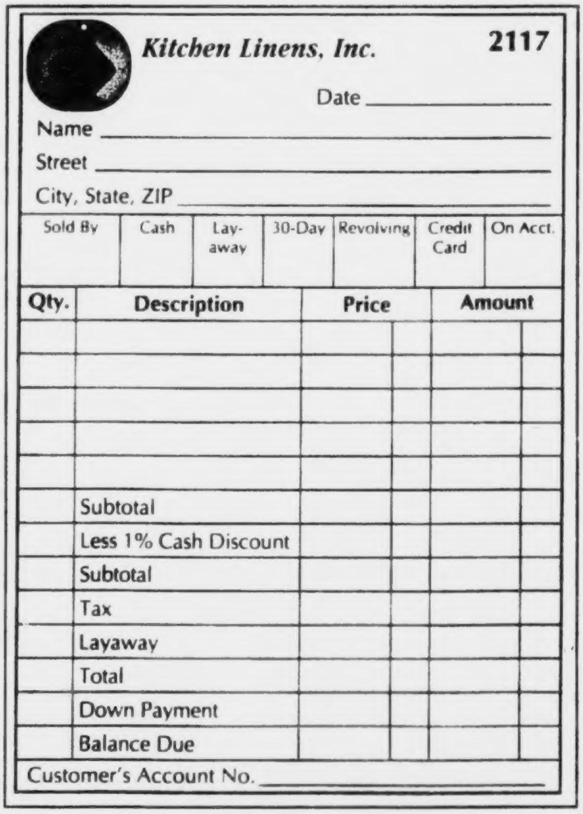
[2] This table was taken from *Fun with Math: Real-Life Problem Solving for Grades 4–8*, Vocational Instructional Materials Laboratory at The Ohio State University. Columbus, Ohio: VIML. 1999.

Table of Foreign Exchange Rates

Country	Current Unit	Foreign Currency in U.S. Dollars	U.S. Dollar in Foreign Currency
Australia	dollar	0.722	1.385
Austria	schilling	0.097	10.26
Belgium	franc	0.033	30.14
Britain	pound	1.928	.519
Canada	dollar	0.837	1.19
Denmark	krone	0.177	5.65
Egypt	pound	0.305	3.25
France	franc	0.202	4.956
Germany	mark	0.684	1.462
Israel	shekel	0.407	2.455
Italy	lira	0.0009	110.0
Japan	yen	0.0079	125.60
Mexico	peso	0.0003	3226.00
Spain	peseta	0.0106	94.00
Switzerland	franc	0.761	1.313

Forms are printed documents that are used to *supply or collect information* appropriate to an individual person, situation, or business. For example, forms can be used to describe the attributes of a person for a job (job application), to verify information (tax report), to request the purchase of specific items (inventory request), to give instructions (service order), to describe items sold (sales report).

This workplace form is used to *collect information* about the sale of items:



Kitchen Linens, Inc. **2117**

Date ____________

Name ____________

Street ____________

City, State, ZIP ____________

Sold By	Cash	Lay-away	30-Day	Revolving	Credit Card	On Acct.

Qty.	Description	Price		Amount	
	Subtotal				
	Less 1% Cash Discount				
	Subtotal				
	Tax				
	Layaway				
	Total				
	Down Payment				
	Balance Due				

Customer's Account No. ____________

How Can This Book Help Instructors Improve Learners' Locating Information Skills?

Remember that Locating Information is all about **reading and interpreting workplace graphics**. *Targets for Learning* gives instructors ideas, information, and practice problems that can help learners develop and practice their skills with workplace graphics.

- The learning activities suggested in each section provide instructors with ideas for helping learners develop and practice locating information at each skill level. Most of the learning activities use materials commonly found in schools, businesses, and homes.
- The practice problems in each section provide learners with opportunities to solve problems similar to those found on the Work Keys Locating Information assessment.
- The resources listed in Appendix B give instructors additional ideas for teaching the Locating Information skills.

Detailed suggestions for using this book are listed on the following page.

How Can I Help Learners Improve Their Locating Information Skills?

Unfortunately, deciding how to structure the Locating Information learning activities is not always easy. Everyone using this book has a unique blend of experience, ideas, resources, learners, and needs. Therefore, instructors who reviewed and/or piloted *Targets for Learning* developed a list of different suggestions for using Targets.

1. **Learn about Work Keys Locating Information skill levels**. By teaching yourself about the levels of skills required to use increasingly complex workplace graphics, you will *gain insights for how to help learners acquire those skills*. In addition, your knowledge of the Work Keys levels will allow you to *adapt* existing materials to the Work Keys format.

2. **Determine each learner's current Locating Information skill level with a *pretest***. The most accurate way to do this is to give the Work Keys Locating Information assessment. If that is not possible, a pretest is provided in this book (refer to the following section on Assessment). After the pretest is scored, learners can use the Learner's Test Score Summary Sheet to identify their own Locating Information skill level. Instructors can record learners' pretest scores on the Locating Information Summary Sheet. (Blank summary sheets are provided in Appendix C, pp. 167.)

3. **Teach learners about the Work Keys levels**. When learners understand how the level of difficulty of Locating Information problems is determined, they are more likely to:

   - Understand their current level of competency.
   - Identify the skills they must develop in order to use graphics to solve workplace problems.
   - Be motivated to improve their Locating Information skills.

   (Refer to the overview of *Locating Information*, pp. 3–6, for further information.)

4. **Make sure learners have prerequisite skills**. These skills are summarized below and are described in detail in the Improving to Level 3 section.

   - Learners need basic reading and organizational skills such as using alphabetical order, headings, and basic workplace vocabulary. They also must be able to read instructions and listen for details and words that limit the task (e.g., *only, both, first,* and *after*).
   - Learners must be familiar with basic symbols and structures of workplace graphics. They need to use keys, understand the meaning and use of the vertical and horizontal axes on graphs, follow a simple flowchart, and recognize the

standard form of common data (e.g., addresses, phone numbers, social security numbers). They also need to use the standard directions on maps (i.e., *north, south, east, west*)—whether or not they are given.

- Learners need to recognize spatial relationships. For example, they need to visually compare the relative sizes or areas of the components of a pie chart.

5. **Encourage learners to set their own goals**. Because learners have taken a pretest and have determined their own Locating Information levels (by completing the Locating Information Test Score Summary Sheet, which is described in the Assessment section of this book), they will know the level at which instruction should begin—their current skill level. With this knowledge as a foundation, guide learners in setting their own goals and help them keep these goals in mind as they participate in learning activities.

   Goals are clearest when learners see the relationship between their goals and specific job qualifications, such as the requirements of a local employer or the Work Keys skill levels described in an occupational profile. The businesses in your community that use Work Keys may be able to provide you with job profiles.

6. **Decide how you will *group* learners and at what skill level(s) you will begin instruction**. When making your decisions, consider the learners' pretest results, your ability to instruct more than one group at a time, and the availability of colleagues, aides, or volunteers. Some options follow:

   - *Work with one level-based group at a time.* For example, begin by working with learners who scored at Below Level 3—helping them to improve to Level 3. Once they have increased their skill levels, work with all learners who originally pretested at Below Level 3 and those who scored at Level 3—helping them improve to Level 4. As they improve their skills at reading graphics, group them with the learners who scored at Level 4—helping them improve to Level 5. Continue the process until all learners are able to read and interpret Level 6 graphics.

   - *Work with two level-based groups at the same time.* For example, work with learners who scored at below Level 3 in one group—helping them improve to Level 3 **and** work with learners who scored at Level 5 in another group—helping them improve to Level 6. Once the below Level 3 learners have raised their skill levels, group them with the learners who scored at Level 4 and give them opportunities to read and interpret more difficult graphics at Level 5. Once learners who scored at Level 5 have raised their skill levels, give them opportunities to solve the more complex Level 6 problems.

   - *Work with two multilevel groups at the same time.* For example, combine in one group the learners who scored at below Level 3 with those who scored at Level 3. In addition, combine learners who scored at Levels 4 and 5 in another group.

- *Work with all learners at the same time,* starting by providing Level 3 instruction to all learners. Continue instruction—moving toward Improving to Level 6 graphics. When doing this, have learners work together in a variety of groupings.

  Note: Because many learners are not working at their skill level, this is the **least effective** way to provide instruction in locating information.

Dividing learners into groups requires some thought and planning. Depending on your goals, the activity, and your learners, it may be appropriate to assign learners to work in pairs or small groups based on the following characteristics:

Learner Group	Example
Similar-ability groups	Level 4 learners work together
Mixed-ability groups	Level 3, 4, and 5 learners work together
Similar-motivational groups	Highly motivated learners work together; less-motivated learners work together
Mixed-motivational groups	Highly motivated learners work with less-motivated learners

It is important to use different groupings for different learning activities; do not have the same learners work together all of the time. After all, successful workplace problem solving involves working on a variety of problems with different people.

7. When using the learning activities included in *Targets for Learning,* **consider the following suggestions for structuring the instructional environment**:

   - Have learners interpret graphics individually, then come together as a group to discuss them.

   - When asking learners to work in small groups, hold each learner accountable for explaining how they answered graphics-related questions. Explain that *each* of them should be prepared to explain how a given question was answered. In addition, you can hold the entire team accountable for *each* member's ability to explain solutions. Thus, more skilled members will be less likely to leave weaker learners behind in the group learning process.

8. **Conduct level-appropriate learning activities**. You should structure a sequence of learning activities to help your learners develop their Locating Information skills. Of course, you will need to use your own judgement concerning the *sequences, amounts,* and *types* of practice provided for learners—depending upon their skills, characteristics, and needs.

   - **Conduct the learning activities and have learners read and interpret graphics** from *Targets for Learning.* Learners should participate in activities that are designed for their Locating Information level. Specific suggestions are provided at the beginning of each level's section.

- **Develop additional learning activities and practice problems using supplemental resources**, as needed. *Targets for Learning* is not meant to be a comprehensive Locating Information resource. The problems in *Targets* can give you ideas for other problems that are encountered in the workplace. *Remember that your primary purpose is to provide learners with work-related problems at the Work Keys level they are working toward.* (Refer to the description of Locating Information levels, pp. 3–6, for suggested content at each Work Keys level.) The following ideas will get you started.

  Experienced Work Keys instructors recommend using actual workplace graphics whenever possible. As one instructor put it, "There is something about having the 'real stuff' (the actual form, catalog, map, etc.) that learners really like. It makes it seem more like something they will really use, instead of just a classroom example."

  ✓ **Modify work-related problems from existing textbooks and resource materials** to the Work Keys format. Many of the books written for learners in vocational and academic programs include Locating Information problems that would be appropriate for use in Work Keys-based curriculum. (The Resources section, Appendix B, suggests books that contain additional problems and activities.)

  ✓ **Obtain authentic graphics from worksites** (e.g., production reports, catalogs, diagrams, sales reports, inventory sheets). Incorporate them into Work Keys-leveled problems.

  ✓ **Use graphics from trade journals and newspapers** (e.g., *USA Today*).

  ✓ **Ask learners to bring in examples of problems they or others encounter at work**. Have learners work in small groups to determine the Work Keys level of each problem and to solve them.

  ✓ **Ask one or more representatives from local worksites to present graphical information to learners** in the same way they would present it to workers on the job. Have learners work in groups to analyze the graphics.

  ✓ **Create projects** that require learners to use and/or develop graphics. Although these types of problems are not leveled according to the Work Keys system, they provide learners with opportunities to use graphics in real-world situations and develop strategies for interpreting and using graphical information.

9. Consider these insights from *Targets* instructors:

- Be sure to *provide learners with enough* ***time*** *to practice* the skills they need to learn. If this is not done, learners will not have enough experience with the skills to achieve a long-term change in their skill levels.

- Each Work Keys level builds upon the previous levels. For that reason, *each level needs to be* ***mastered*** *before advancing to the next level.* If, after post-testing, you find that some learners are not ready to advance to the next level, give them additional instruction at the current level.

Assessment

Assessment is important for several reasons, including the following:

- Assessment helps instructors **identify where to begin instruction**.
- Assessment helps instructors **document the gains** made by learners.
- Assessment **gives learners information** about their current skill levels, and helps them recognize their improvements.
- Assessment is a way to **document for funders** the effectiveness of an intervention program.

The following options are presented to help you determine the most appropriate assessment methods for your learners. Suggestions include pre- and post-testing, recording test scores, helping learners improve their test-taking abilities, and using assessments to check learning and provide feedback.

Assessments to Use Before and After *Targets for Learning* Instruction

It is important to assess the gains made by learners from the time they begin using *Targets for Learning* through the completion of *Targets* activities. These summative gains are best documented by using a pretest-and-post-test strategy. **Give learners the Work Keys Locating Information assessment and/or the assessments provided in this book at both the beginning and the end of instruction.**

- The Work Keys assessment, which is administered at some high schools, vocational schools, and adult full-service centers, is an accurate way for learners and instructors to measure learners' pre- and post-instructional Work Keys levels. (In most other states, Work Keys has service centers in vocational schools or community colleges. To locate the service center nearest you, contact ACT directly.)
- A ready-to-use assessment is provided in Appendix C, pp. 163–180.

Caution: This ready-to-use assessment will give instructors and learners a general placement level. However, serious decisions should not be made on the basis of scores on this test; it has not been field tested for statistical validity and reliability.

Before testing learners, it is important to teach them about effective test-taking strategies. You can provide learners with a handout that covers some or all of the points described on the Locating Information Test-Taking Hints sheet, which follows in this section. It is important to discuss the handout information with learners so that they realize that *they control many of the factors related to their testing success.*

After the tests are scored, have learners review their own tests. Have them complete the Learner's Test Score Summary Sheet, which is located in Appendix C, p. 167. By having learners place their test information on this sheet and determine their Locating Information level, they will see **why** they placed at a specific level. For many learners, understanding why is the first step toward improvement.

In addition, instructors are encouraged to use the test review as an opportunity to help learners understand their current level and the levels above where they scored. By understanding the skills that differentiate one level from the other and seeing where their current skill levels fall, learners can be guided to set goals for improvement.

Record pretest and post-test levels of your learners on one sheet. This allows you to analyze the status of your learners. Some instructors use a separate sheet for each level (e.g., one sheet for all learners with a Locating Information pretest score of 4). You may wish to use the Locating Information Summary Sheet, which is located in Appendix C, p. 168, to record learners' scores. The same sheet can be used to record learners' accomplishments as they practice Locating Information.

Assessments That Check Learning and Provide Feedback

Determine what learners know through *smaller, formative assessments.* The following options may be helpful as you consider ways to document what has been learned about individual topics. Remember that you can record grades and/or observations on the Locating Information Summary Sheet in Appendix C.

- **Observe learners as they participate in *Targets* activities**. Jot down notes about the skills learners used and the improvements they have made.

- **Assign one-minute papers**. During the last few minutes of the class, ask learners to do two things: (1) summarize what they learned that day and (2) list any questions that they have about the day's materials. Writing one-minute papers helps learners take responsibility for their own learning, become skilled at synthesizing information, and practice writing. In addition, this is a good instructional strategy for determining whether or not learners have grasped the day's (or lesson's) objectives. Many instructors assign one-minute papers at least once weekly.

- **Assign individual journals** in which learners describe what they did, how it worked, and how they felt about their learning experiences. Such self-reflection helps learners gain insights into how they learn and how they might learn better.

- **Assign self-critiques or reflections**. This is similar to the journal-writing assignment, but is written for a single lesson or problem. Learners provide a written account of what they did, how it worked, and how they felt about solving a specific problem. The goal of this assignment is for learners to evaluate their own *learning process* and consider what they might do differently when solving problems in the future.

- **Assess learners' abilities to use graphics in real-world situations**. Sometimes the best way to tell if learners understand a given skill is to have them apply it to an actual situation.

- **Collect and grade a few of the problems** from *Targets for Learning*. As a check to see if individual learners are able to solve problems in Locating Information, collect and grade several of the problems. Grading of **all** *Targets* problems is not recommended because the problems are meant to be a learning tool rather than an assessment tool.

- Use this space to **write your own ideas** for assessing learners as they learn and practice Locating Information skills.

Hints for Completing Locating Information Practice Problems and Test Questions

✓ *Read the instructions* carefully. Make sure you understand the directions.

✓ *Budget your time* carefully. (Don't spend so much time on one problem that you don't have time to work on others.)

✓ Be sure that you *understand how to take a multiple choice test.* There are four or five answers for each question (A, B, C, D, and E). Each answer is a possible solution. Eliminate answers that you know are wrong by crossing them out. Then you can substitute the remaining solutions into the problem to see which one fits.

✓ *Start at the beginning.* Work Keys tests start with easier problems and progress to more difficult ones. It is a competency test, so you must get the beginning problems correct in order to get credit for correct answers to the more difficult problems. For example, you must answer approximately 80% of Level 3 questions before you can be judged competent at that level. You cannot attain Level 4 until you are competent at Level 3

✓ When solving a problem, do the following:

1. *Read the question* carefully—two times.
2. Underline what you are being asked to fill in, find, summarize, compare, decide, or conclude. Ask yourself, "What am I looking for in this problem?"
3. *Scan the graphic* for needed information. (Resist the temptation to read the graphic first—this will save you valuable test-taking time.)
4. *Circle* all the relevant information on the graphic. Ask yourself, "Is this all the information I need to solve the problem?"
5. *Eliminate* one or more answers that you know are wrong. Cross them out so that you can clearly see the remaining choices.
6. *Select the correct answer.* Mark the answer sheet accordingly.
7. Once your answer is marked, don't keep changing it—your first answer is usually correct.

✓ Make a *best guess* for problems you can't figure out. (There is no penalty for guessing. Do not leave any questions unanswered.) However, guess **only** after you have tried your best to answer a question.

✓ *If you begin to feel tense, warm, nervous, and/or anxious,* **stop**! Take three or four deep breaths—inhaling slowly, then exhaling slowly. Then start again on the problem or go to the next one.

✓ Research has found that sucking on peppermint hard candies improves test performance. (It's true! Try it!)

Insert the "Improving to Level 3" Divider Here

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Characteristics of Level 3 Graphics

Level 3 graphics are very simple, clear, and straightforward. They can include simple order forms, bar graphs, tables, gauges/dials, floor plans, flowcharts, and diagrams.

Level 3 Locating Information Skills

- ***Find*** **one or two pieces of information** from a simple graphic.
- ***Fill*** **in one or two pieces of information** into a simple graphic.

The learning activities and practice problems in this section will help learners develop and practice Level 3 Locating Information skills.

> Important! When developing learning activities and practice problems, instructors should focus on asking learners to practice these Level 3 skills.

Prerequisite Skills

To successfully read Level 3 (and higher) workplace graphics, learners need some prerequisite skills[3]. These skills include basic reading and organization skills. Other needed skills involve familiarity with basic symbols, structures, and spatial relationships of workplace graphics. Each of these prerequisite skills is described below.

Instructors should give learners opportunities to develop and practice the prerequisite skills using a wide variety of graphics. To do this, introduce learners to uncomplicated graphics that are commonly found in their everyday lives. Help them identify the parts and characteristics of the graphics, as described below.

The **basic reading and organizational skills** needed to read and interpret Level 3 graphics follow:

- Learners should be able to recognize the use of **alphabetical order** and other methods of organizing material (e.g., numerical order).
- Learners should be able to use **headings and other verbal cues** to the *topic* of the graphic and the *location* of information. For example, they should be able to identify column headings and pie chart section labels.
- Learners should be able to use **basic workplace vocabulary**. For example, they should know the meaning of words such as sales associate, manager, sick leave, benefit, profit, and quarterly report.
- Learners should be able to **read and listen to instructions**, identifying significant details and words that limit the given task. For example, words such as *only, all, both, neither, last,* and *before* provide graphics users with important cues.

> Note: Some prerequisite skills for Locating Information (e.g., basic reading and organizational skills) are covered in *Targets for Learning: Reading for Information*. Although the skills are taught and practiced through text rather than graphic formats, this resource can help learners develop the skills that are critical to successfully locating information.

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[3] These skills are described in greater detail in *Targets for Instruction: Locating Information*, pp. 36–38.

The **basic symbols and structures** needed to read and interpret Level 3 graphics include:

- Learners should be able to use **keys** and **legends**.
- Learners should be able to understand the meaning and use of the **vertical and horizontal axes** on all types of graphics.
- Learners should be able to **follow a simple flowchart**.
- Learners should be able to recognize the **standard form of common data**. For example, they should be familiar with the standard form of addresses, phone numbers, social security numbers, and ZIP codes.
- Learners should be able to use the standard **directions on a map**, whether or not they are given on the map. For example, they need to understand that the top of a map is *north*, unless stated.
- Learners should be able to recognize **spatial relationships**. For example, they need to be able to *compare* the relative sizes or areas of the components of a pie chart or bar graph. They should understand and apply concepts such as *about half, smallest, largest, about double, most, least, greater, smaller, increase*, and *decrease*.

Graphics Descriptions and Learning Activities for Helping Learners Improve to Level 3

At Level 3, learners should be able to fill in or find one or two pieces of information from simple graphics. Help learners who are improving to Level 3 to understand graphics and identify their uses by doing the suggested learning activities. These learning activities can be completed individually or in pairs. In some cases, it may be appropriate to ask learners to work in teams of 3–4.

This section includes learning activities that can be applied to all types of graphics. It also includes learning activities for each type of graphic included in Locating Information.

General Graphics-related Learning Activities

The following skills are critical to success at Level 3 of Locating Information. Instructors should give learners practice with these skills. This can be done by first teaching the skills in isolation and then by helping learners use those skills as they study specific types of graphics.

- **Skimming** and **scanning** graphics to identify their **purposes**
- Paying attention to graphics' **details**
- Making **generalizations** from graphics

When reading any type of graphic, learners should be able to take the following steps. Instructors should guide learners through each step as they read a variety of simple graphics.

1. Determine the **type** of graphic.
2. Read the **title** and **subtitles**.
3. Read the **labels**, **captions**, **legends**, and/or **keys**.
4. Determine the **purpose** of the graphic. For example:
    - Does it show **changes over time** (e.g., a bar graph illustrating a company's growth)?
    - Does it show **how something is divided** (e.g., a pie chart showing the percentage of a company's budget that is allocated to different expenses)?
    - Does it show a **comparison** of two sets of numbers (e.g., a line graph showing the number of stock shares purchased and the price of each share)?

- Does it show a **list of data** (e.g., a table listing prices for items)?

5. Read the **text** before and after the graphic. It will give a *context* for the graphic and may *explain terminology* used in the graphic.

These graphic-reading steps can be taught and reinforced at the same time that specific graphics are studied. Learning activities that will help learners develop and practice these general skills are described on the following pages.

Map, Layout, and Floor Plan Learning Activities

Maps, layouts, and floor plans are figurative drawings that show the *design* or *arrangement* of a location (e.g., a parcel of land, a building, a room). When needed, a key is used to explain the symbols in such drawings.

The best way to begin to teach learners who are improving to Level 3 is to help them understand and interpret *simple* maps, layouts, and floor plans. (These types of graphics are less abstract than charts and graphs; therefore, they are easier to understand.) Instructors and learners can find simple maps in local newspaper ads, telephone books, magazines and tourist attractions (e.g., museums, amusement parks). Those shown on pp. 10–11 are examples of Level 3 maps, layouts, and floor plans. Note: Graphics that are more complex are included in higher levels.

- Ask learners to answer questions that help them understand **headings** and **titles**, use **keys**, identify **directions** (e.g., determine if a building is north or south of the freeway), note relative **distances** (e.g., choose the shortest route, identify the largest room), and find specific **locations** (e.g., identify the street on which a specific building is located, trace the route from X building to Y building).

- Have learners locate specific landmarks on a city map or a specific county on a state map.

- Have learners **develop their own maps, layouts, and floor plans**. For example, they can work individually or in teams to draw a map of their neighborhood or a layout of their classroom, work area, or a room at home. Remind learners that *their graphics should have a specific purpose*. They should provide information that will help the graphics-users, including a title and a key (if appropriate).

  In addition, instructors may wish to have learners write questions about their graphics that will be answered by other learners.

  Once learners' graphics are completed and questions about them are asked/answered, instructors might ask learners to explain and justify why certain information was included and/or left out of each graphic.

Flowchart and Diagram Learning Activities

After instructing learners in reading maps, layouts, and floor plans, help learners understand and interpret diagrams and flowcharts. Diagrams show *arrangements and relationships of parts.* (An example is given on p. 10). For example, diagrams can show a building's heating or electrical system, the construction of a machine, or the order of the controls on a panel.

Additional practice with diagrams can be given by:

- Having learners draw a diagram of the classroom or building layout. Then have them write questions about their diagram that other teams will answer.
- Having learners follow a building's heating or electrical system.
- Have learners work in teams to construct a piece of machinery or a LEGO model by following the diagram.

Flowcharts show the *arrangement of responsibilities or procedures.* (An example is given on p. 11.) Explain that the shapes are purposeful and are standard (e.g., rectangles represent actions or processes, diamonds represent decision points). The flowchart on p. 11 is a Level 3 example. Note: Flowcharts that are more complex and/or include technical terminology are included in higher levels.

The best way to help learners with flowcharts is to have them make their own. Learner flowcharts can describe a specific procedure (e.g., change a tire, program a VCR, cook a specific item of food) or process (e.g., a decision-making or appeal process in a business or school). Be sure that each flowchart has an appropriate title.

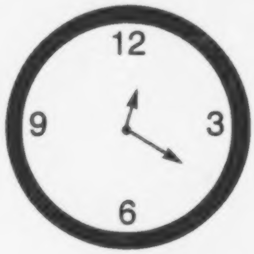
Once flowcharts are made, have learners describe the procedure or process orally and/or in writing. This will help them use and associate words that designate order, choice, and limits on the actions described throughout the flowchart. For example, a procedure might include what to do *first, next,* and *last.* An effective way to help learners make a connection between their narrative descriptions and the flowcharted information is to have them write those words (*first, next, last*) directly on their flowcharts.

Instrument Gauge Learning Activities

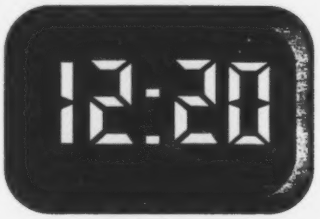
Instrument gauges present a wide variety of workplace information. Information can be displayed on gauges in analog or digital formats—or both. Analog gauges display information on a graduated scale that is in either a linear or nonlinear format. For example, a vehicle's speedometer displays linear information (speed can range from 0 to 120). Nonlinear information is displayed on a clock with hour and minute hands (time is determined by reading both hands).

Gauges can also present information in numerical (digital) format. For example, a digital display on a production machine displays numbers representing time and quantity.

These are examples of analog and digital gauges that might be found in the workplace:



analog



digital

Characteristics of analog gauges:

- They usually have a dial and a pointer.
- They sometimes have more than one scale.
- If pointing between the written values on a dial, the reader needs to interpret between the marked points. This requires counting the number of unmarked spaces between the marked points.

To attain Level 3 Locating Information skills, learners should be able to *read and interpret analog gauges.* Instructors can help learners develop these skills, they should:

- Help them realize that they come into contact with instrument gauges in their everyday lives (e.g., clocks, speedometers, bathroom scales, oven dials, meat thermometers, home electric and water meters).
- Provide opportunities for learners to practice *identifying the labels* on and *reading* a variety of gauges, including those described above. Be sure to give them practice at reading those with *more than one pointer and scale* on the dial. For example, some furnace thermostats use two scales: one for the set temperature and one for the actual temperature. Also, clocks, voltmeters, and multimeters have more than one scale.

- Give learners *drawings* of instrument gauges for practice. Be sure to have them *identify the labels* (e.g., pounds per square inch, degrees Fahrenheit) *and the purpose* of each graphic. In addition, have learners *read* the gauge, making sure they accurately identify the value indicated by the needle(s). Note: Instructors can make their own drawings and/or find them in math textbooks, automotive manuals, and similar technical manuals.

- Give learners a digital time and have them put hands in the appropriate places on an analog clock.

Pie Chart, Bar Graph, and Line Graph Learning Activities

Pie charts are used to illustrate a *whole* that is broken into parts (i.e., proportions). The total of the parts always adds up to 100% An example of a pie chart can be found on p. 9.

Bar graphs often display *categories of information* across the horizontal axis. The categories are either labeled or referenced by a key. The categories are quantified along the vertical axis—using a *uniform scale*. However, some bar graphs use the horizontal axis as the uniform scale and the vertical axis for the categories of information. Bar graphs can also show **both** *change* and *comparisons*. Examples of bar graphs can be found on pp. 7–8.

Line graphs use a vertical and a horizontal axis to illustrate pairs of numbers or coordinate points. A key must be provided to make use of information presented in this type of graph. Line graphs are often used to show *change over time* (e.g., sales trends, stock prices, and the changing characteristics of the workforce). An example is provided on p. 9. Steps for reading line graphs are listed on p. 53.

Instructors should help learners read and interpret *simple* pie charts, bar graphs, and line graphs. Some suggested learning activities follow:

- Have learners work individually or in pairs to **develop a pie chart** that represents the composition of the class or workplace in terms of a specific attribute (e.g., gender, age, job title). They should take the following steps:

    1. Draw a circle (pie) that represents the whole.
    2. Divide the pie into sections that accurately represent the percentages of each attribute.
    3. Identify each section with a visual pattern (e.g., colors, shading).
    4. Label each section with the category and percentage of the whole.
    5. Title the pie chart.

- Have learners **examine their pie charts** to identify the approximate proportions (e.g., half, quarter). If they have difficulty doing this, encourage learners to compare pie chart proportions to a clock face.

- Find simple bar graphs and line graphs in newspapers or magazines. Have learners practice interpreting them. They should skim the graphs, being sure to examine the title/heading to identify the purpose of the graph. And they should review the label for each axis before examining the data presented in the graph. (More detailed suggestions for reading graphs are provided on pp. 29–30.)

- Have learners **sort items** (e.g., M&Ms®; buttons; or screws, nails, and/or bolts) into categories and then chart their data. Bar or pie graphs are the best graphics for representing this type of data. Charts should include all appropriate labels and a title.

- Have learners **compile information in table form** (e.g., several classmates' or coworkers' names *and* titles *or* favorite sport). Remember: Level 3 graphics are very elementary; more complex graphs are included in Levels 4–6. Have learners put the table information into the most appropriate graph form (i.e., bar, line, or pie graph). Be sure that there is a heading, the scales have regular intervals, and the labels are accurate.

> Note: It is important for learners to understand that certain information is most appropriately graphed in certain formats. For example, line and bar graphs show change over time, line graphs illustrate attributes, and pie graphs illustrate how a whole is divided.

- Have learners **gather and chart pairs of continuous information** (e.g., number of learners and their test scores, a company's earnings each month or year, football scores for each game, or temperatures for each day, week, or month) on line graphs. Have them follow these steps:

    1. Begin with pairs of data.
    2. Choose a scale for each axis. Label the axes and be sure that the scales are spaced accurately.
    3. Plot each pair of points by moving toward the inside of the graphic from the point on each axis. Place a mark (e.g., dot) where the two points meet.
    4. Put a title on the graph.

- Have learners **collect data and place it in a table or bar, line, or pie graph form**. Then have them convert the information to other forms and compare the results.

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Table Learning Activities

Tables contain ***data that is arranged in columns and rows***. The format of tables allows users to read, analyze, and find the included information much quicker than they could if it were in text format. Tables are often used to display technical and financial data. They can be used to illustrate quantities, comparisons, change, proportion, and attributes. Note: No one category of information is emphasized in tables. An example is shown on p. 13.

Instructors should give learners opportunities to read and interpret information that is organized in table form. Some learning activities that involve tables follow:

- Have learners **analyze simple tables**, such as simple television viewing guides, work schedules, menus, and temperature charts. When working with a table, they should be able to:
    - Locate the *title* of the table and its rows/columns to get an *overview* of the table content.
    - Look for *organizational clues* (e.g., numeric or alphabetical order).
    - Skim the table to identify the *type of information* contained in rows/columns (e.g., quantities, attributes).
    - *Fill in* and *find* one or two pieces of information from the table.
- Have learners **create their own simple tables** by gathering information from the workplace or classroom. They should be sure to include appropriate titles and labels of rows and columns.
- Have learners take information that is presented in narrative (paragraph) format and convert it to a table format.

Form Learning Activities

Forms are printed documents that are used to *supply or collect information* appropriate to an individual person, situation, or business. For example, forms can be used to describe the attributes of a person for a job (job application), to verify information (tax report), to request the purchase of specific items (inventory request), to give instructions (service order), to describe items sold (sales report).

Instructors should give learners opportunities to *fill in* and *find* information from a wide variety of forms.

To do this, first supply learners with a wide variety of forms commonly found at work and elsewhere. For example, learners can develop and practice their Locating Information skills using telephone message pads, job applications, short tax forms, fast-food order forms, catalog order forms, license applications, voter registration forms, and work orders.

Learning activities, which can be done individually or in pairs, might include the following:

- Have learners **scan various forms**, including titles and headings, to identify the *purpose* and *details*.
- Give each learner **several forms to fill in** (e.g., a basic job application, deposit slip, check, magazine subscription form, and/or telephone message slip). Then, for each form, do the following:
    1. Facilitate a class discussion about why each piece of information is required and the possible consequences of inserting incomplete or inaccurate information.
    2. Have learners *fill in* their forms.
    3. Ask learners to work in small groups to *critique* the results.
- Give learners blank forms and instruct them to **fill in specific information**.
- Give learners copies of completed forms and instruct them to **locate specific information**.
- When working in pairs, ask learners to **develop questions about the forms** and/or learning activities for other learner pairs to answer.

Practice Problems for Improving to Level 3

The following practice problems will help learners improve to Locating Information Level 3. These problems resemble those on the Work Keys Locating Information Assessment.

Each problem requires learners to *fill in* or *find* one or two pieces of information from a simple graphic. Instructors are encouraged to develop additional Level 3 practice problems for classroom use.

Answers to these practice problems are on pp. 62–63.

Map, Layout, and Floor Plan Practice Problems

Maps, layouts, and floor plans show how things are arranged. Sometimes they look real; sometimes they are represented by symbols.

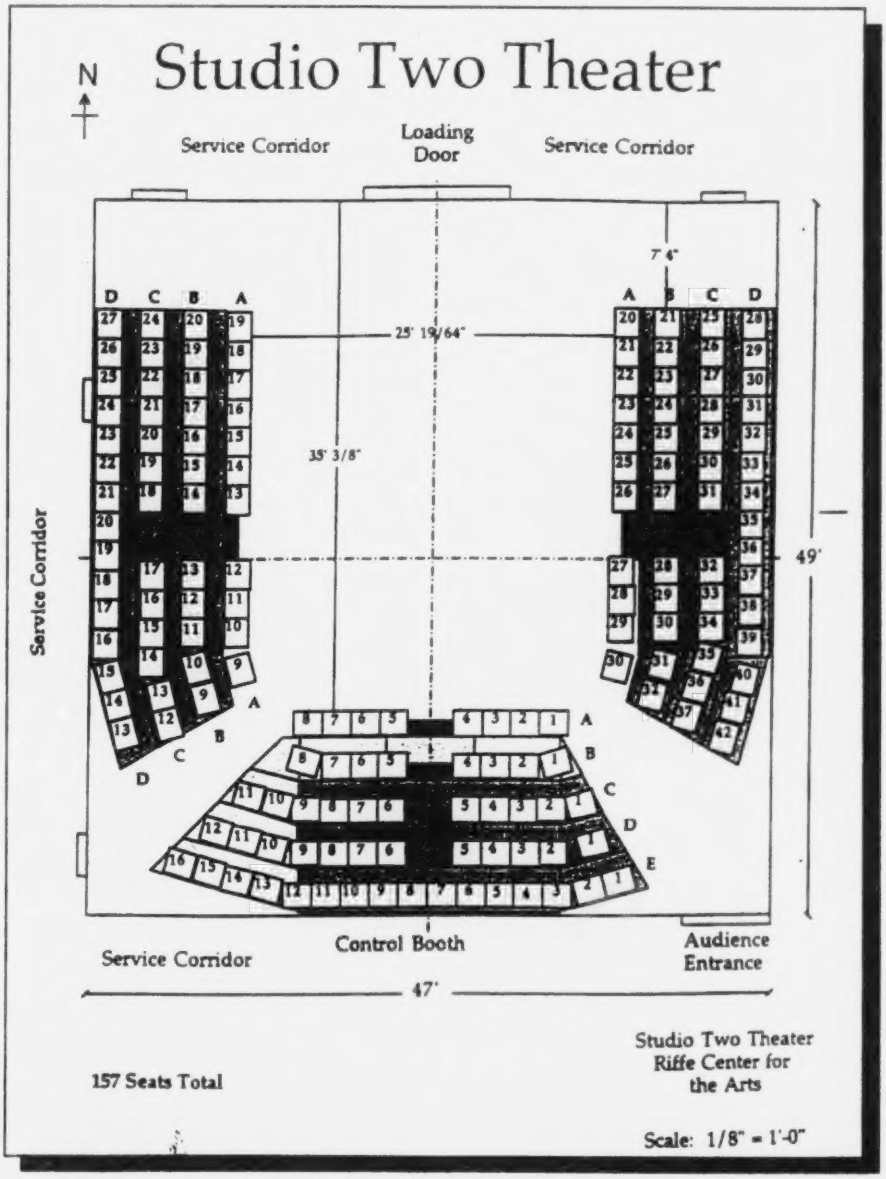
These graphics have common parts. Note: Graphics can contain one, some, or all of these parts.

- **Title**—tells the subject
- **Legend** or **Key**—explains the symbols used in the graphic
- **Scale**—shows a ratio between the actual and the drawing's measurement
- **Grid**—a series of lines that helps users find things using coordinates
- **Compass**—tells which direction is north (If there is no compass, assume that the top of the map is north.)

Practice Problem 3.1

You work in a box office at the Riffe Center for the Arts. A customer calls to exchange her seats in Row B, Seat 22 for a seat that is closer to the audience entrance. Which seat should you choose for her?

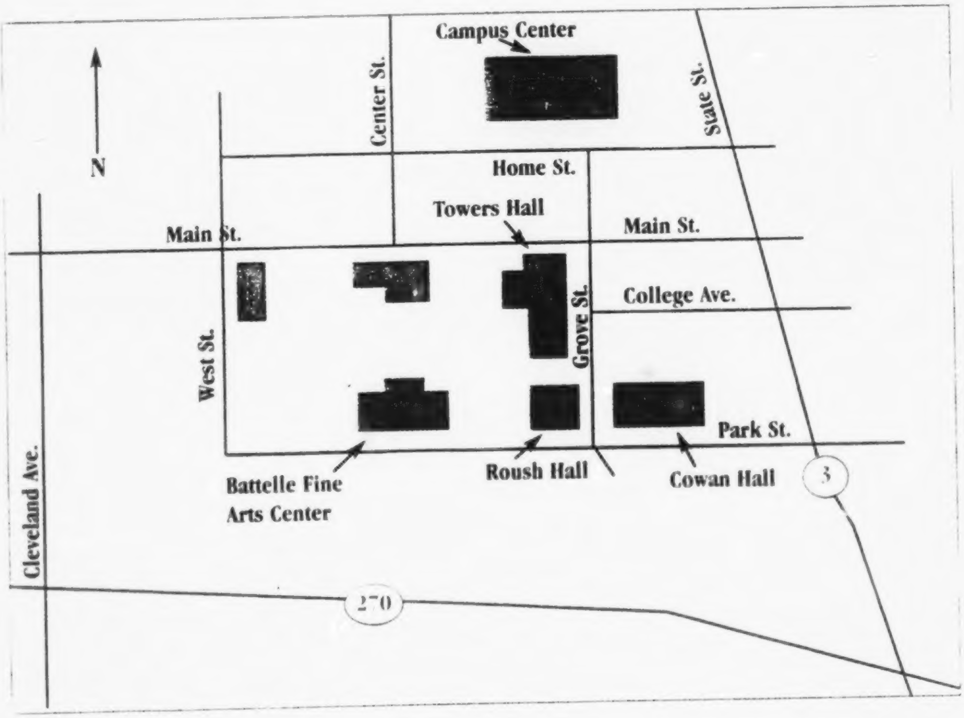
A. Row B, Seat 21
B. Row C, Seat 36
C. Row C, Seat 22
D. Row D, Seat 26
E. Row A, Seat 12


Studio Two Theater
N
Service Corridor
Loading Door
Service Corridor
7' 4"
25' 19/64"
35' 3/8"
49'
Service Corridor
A
B
C
D
E
Service Corridor
Control Booth
Audience Entrance
47'
157 Seats Total
Studio Two Theater
Riffe Center for the Arts
Scale: 1/8" = 1'-0"

Practice Problem 3.2

You work for a courier service. You are asked to make a delivery to Cowan Hall. On what street is Cowan Hall located?

A. Home Street
B. Main Street
C. State Street
D. Park Street
E. Center Street

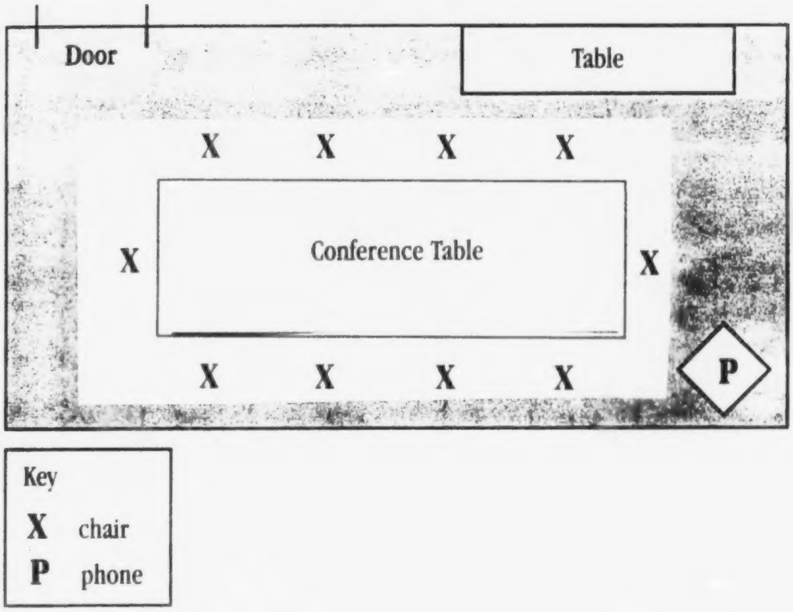

N
Campus Center
Center St.
State St.
Home St.
Towers Hall
Main St.
Main St.
College Ave.
West St.
Grove St.
Cleveland Ave.
Park St.
Battelle Fine Arts Center
Roush Hall
Cowan Hall
3
270

Practice Problem 3.3

How many chairs surround this conference table?

A. 4
B. 6
C. 8
D. 10
E. 12

Corporate Headquarters
Conference Room


Door
Table
X X X X
X
Conference Table
X
X X X X
P
Key
X chair
P phone

Practice Problem 3.4

How would you get from Room 202 to Room 301 of the Bainbridge Building?

A. Take Elevator 1 only
B. Take Elevator 2 only
C. Take Elevator1, then elevator 2
D. Take Elevator 2, then elevator 1
E. Cannot get from Room 202 to Room 301

How would you get from Room 402 to Room 101 of the Bainbridge Building?

A. Take Elevator 1 only
B. Take Elevator 2 only
C. Take Elevator1, then elevator 2
D. Take Elevator 2, then elevator 1
E. Cannot get from Room 202 to Room 301

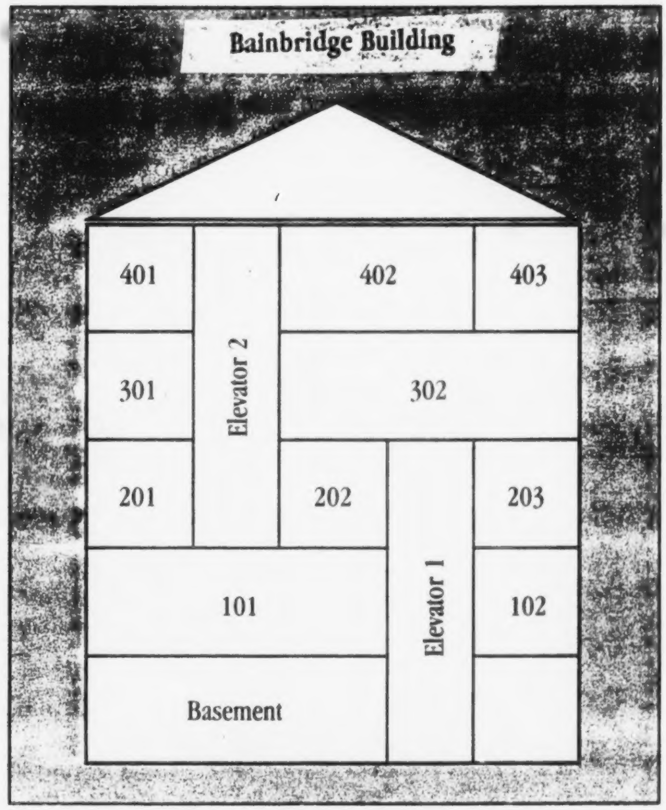

Bainbridge Building
401
402
403
Elevator 2
301
302
201
202
203
Elevator 1
101
102
Basement

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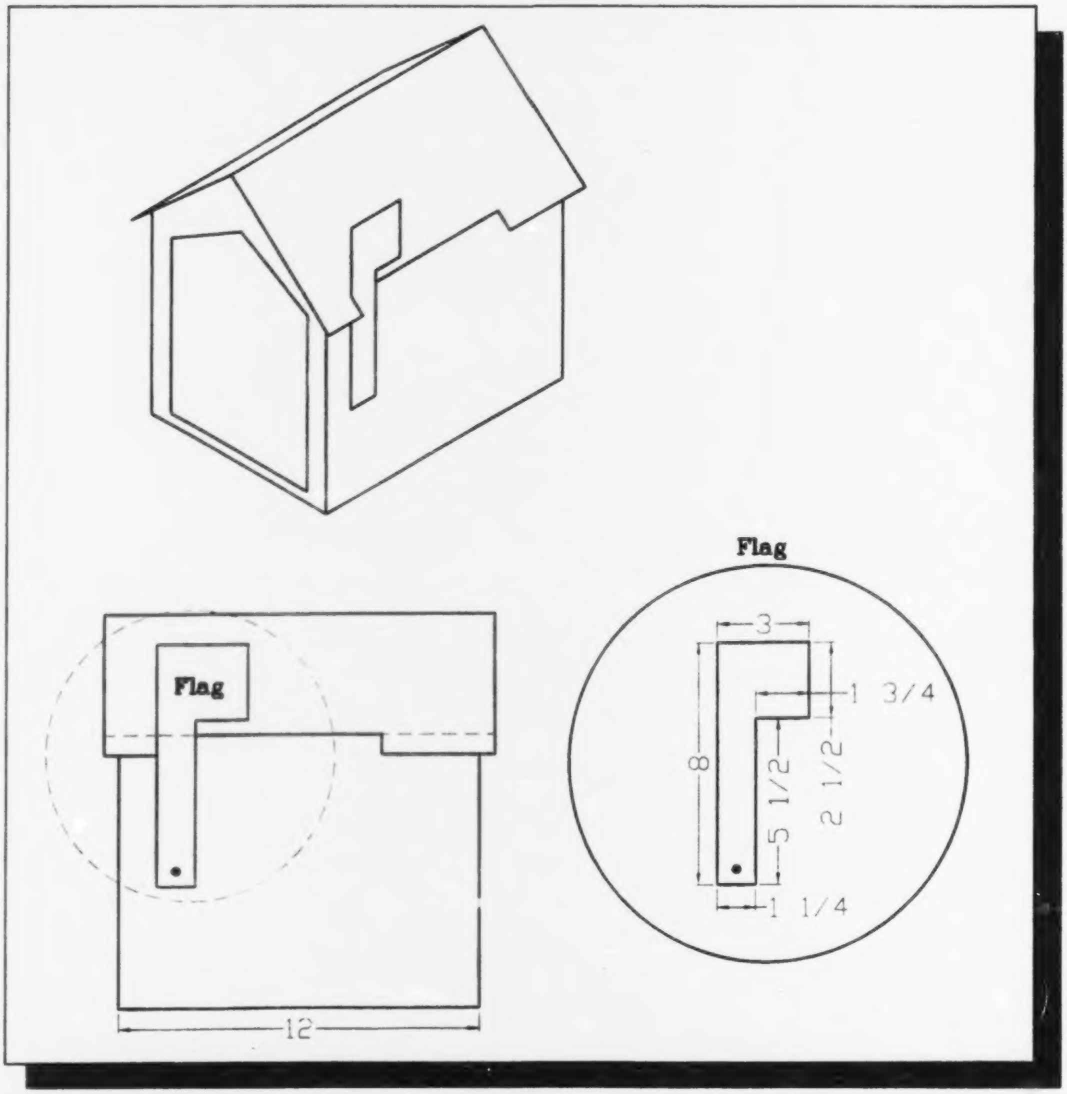
Diagram Practice Problems

Diagrams show arrangements and relationships of parts.

Practice Problem 3.5

You work in a wood shop. You have been instructed to make a mailbox with the specification outlined on the following drawings. How tall will the flag be?

A. 1 1/4 inches
B. 1 3/4 inches
C. 3 inches
D. 5 1/2 inches
E. 8 inches



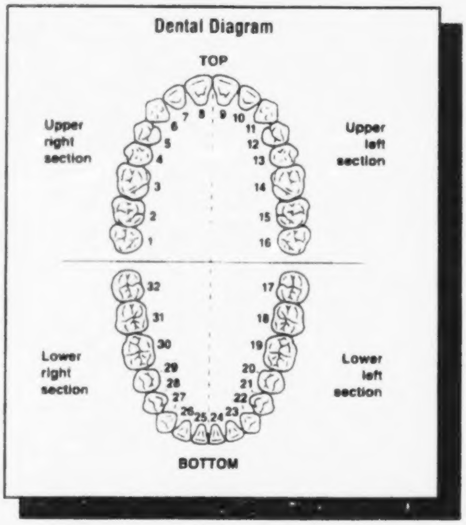
Practice Problem 3.8

You work as a receptionist in a dental office. To accurately enter information about patients' conditions, you need to be able to read dental charts.

In the chart below, how many teeth are in the top of the mouth?
- A. 1
- B. 8
- C. 9
- D. 16
- E. 32

How many teeth are in the lower right section?
- A. 2
- B. 8
- C. 16
- D. 23
- E. 32

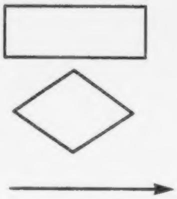
Which of these is located in the upper right section of the mouth?
- A. Tooth #1
- B. Tooth #9
- C. Tooth #11
- D. Tooth #17
- E. Tooth #32


Dental Diagram
TOP
Upper right section
Upper left section
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
Lower right section
Lower left section
BOTTOM

Flowchart Practice Problem

Flowcharts are diagrams that show the arrangement of a series of actions or decisions. Often, they describe how to perform multi-step tasks.

Flowcharts incorporate these uniform shapes:



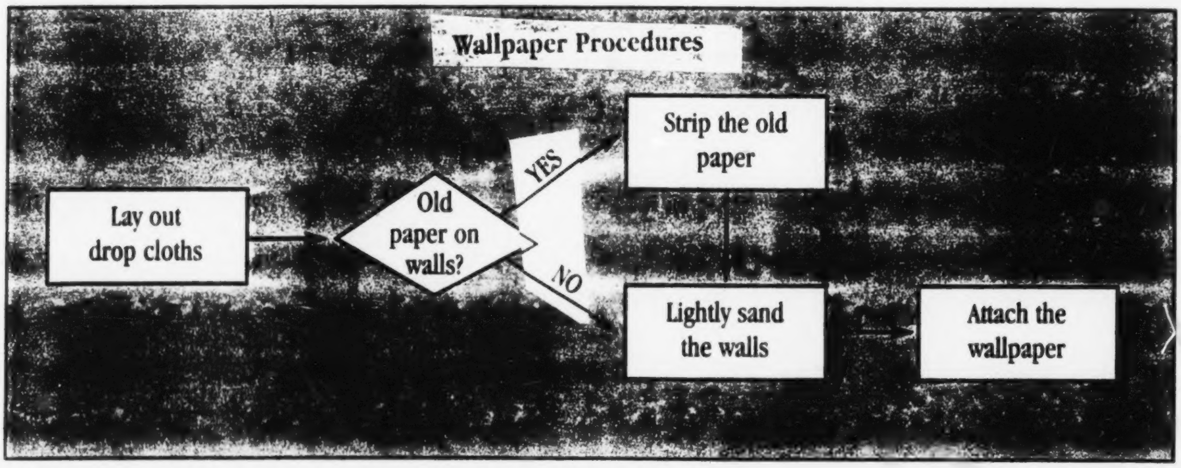
- **Rectangular shapes** represent actions.
- **Diamond shapes** represent decisions.
- **Arrows** connect the flowchart components.

Practice Problem 3.7

You have been paid to wallpaper the lunchroom at a local business. Before beginning the job, you review a flowchart that describes the tasks involved.

According to the flowchart, what action must you take if you determine that there is old wallpaper on the walls?

A. Attach the wallpaper
B. Lay out drop cloths
C. Strip the old paper
D. Lightly sand the walls


Wallpaper Procedures
Lay out drop cloths
Old paper on walls?
YES
NO
Strip the old paper
Lightly sand the walls
Attach the wallpaper

Instrument Gauge Practice Problems

Instrument gauges show the current condition of some type of changing information. They most often show the current temperature, time, weight, or pressure. Gauges can be digital or analog.

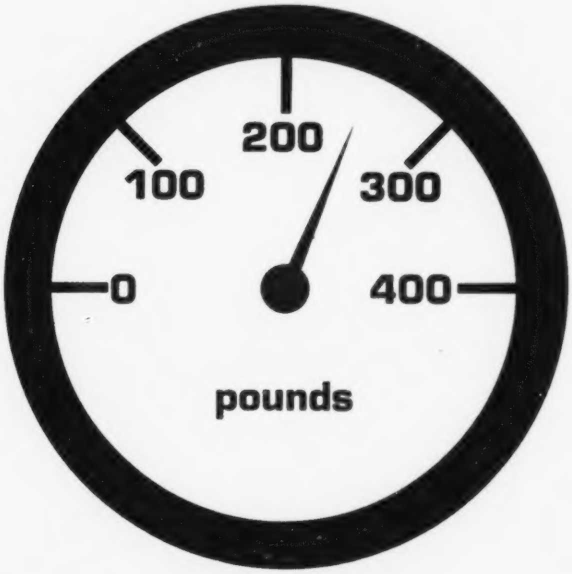
Characteristics of analog gauges:

- They usually have a dial and a pointer.
- They sometimes have more than one scale.
- If pointing between the written values on a dial, the reader needs to interpret between the marked points. This requires counting the number of unmarked spaces between the marked points.

Practice Problem 3.8

What is the current measurement on this industrial scale?

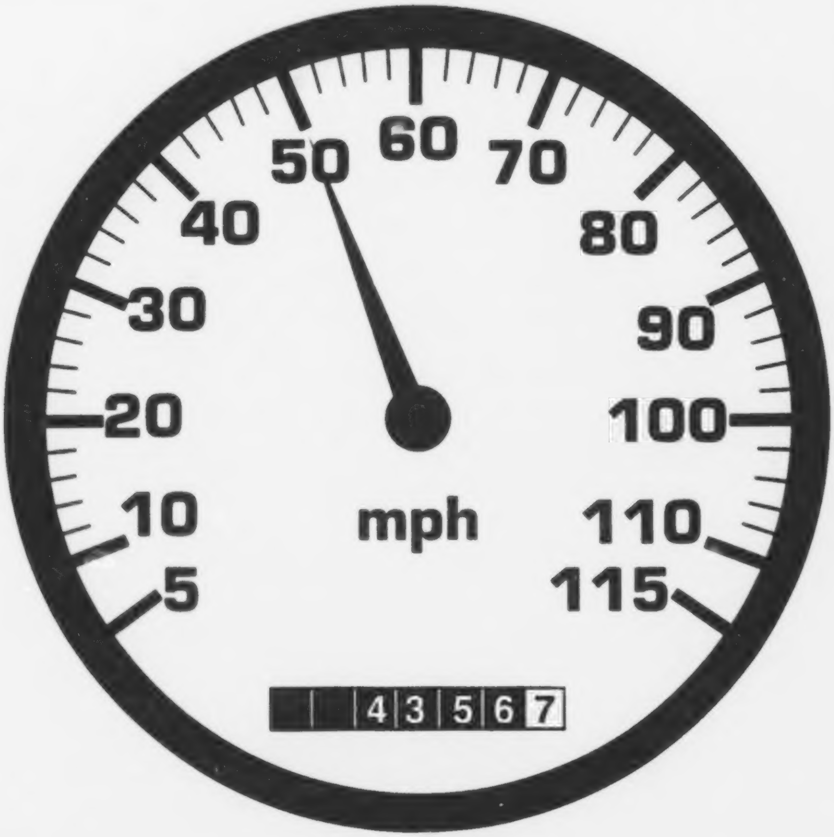
A. 100 pounds
B. 150 pounds
C. 200 pounds
D. 250 pounds
E. 300 pounds



Practice Problem 3.9

What is the current speed on this car speedometer?

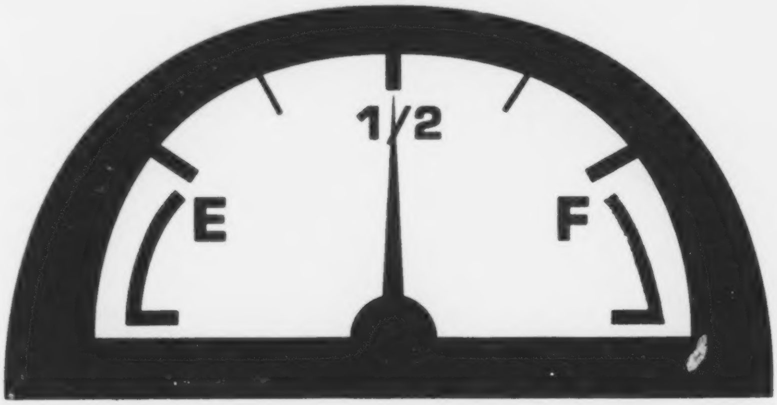
A. 30 mph
B. 40 mph
C. 50 mph
D. 60 mph
E. 70 mph


5
10
20
30
40
50
60
70
80
90
100
110
115
mph
43567

Practice Problem 3.10

This gauge indicates the current amount of lubricant remaining in a machine. How much lubricant is left?

A. none
B. 10%
C. 1/2
D. 1/4
E. 3/4



Pie Chart Practice Problems

Pie charts show how a whole is divided into sections. The larger a piece of the whole, the larger the piece of the chart it gets.

Characteristics of pie charts:

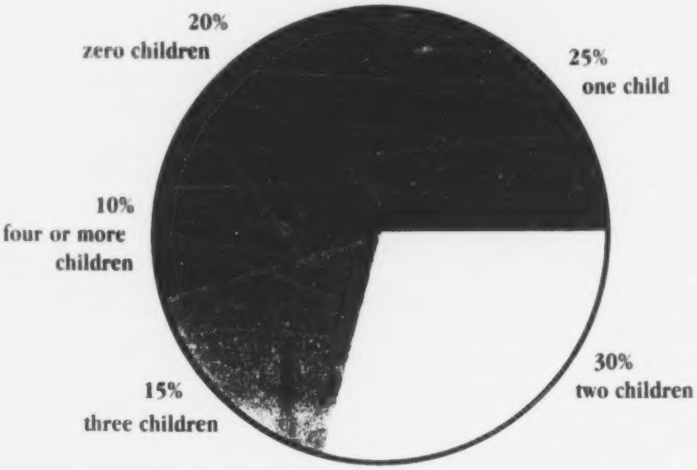
- The whole circle represents **100%**.
- Pie charts usually have **labels** to describe each section.
- The numbers describing the quantity of each section are usually shown as percentages instead of the actual numbers.

Practice Problem 3.11

You market baby food. Recent research findings that could affect your sales are illustrated in the pie chart below. What percentage of all women have had four or more children?

A. 10%
B. 15%
C. 20%
D. 25%
E. 30%

Number of Children Borne by U.S. Women

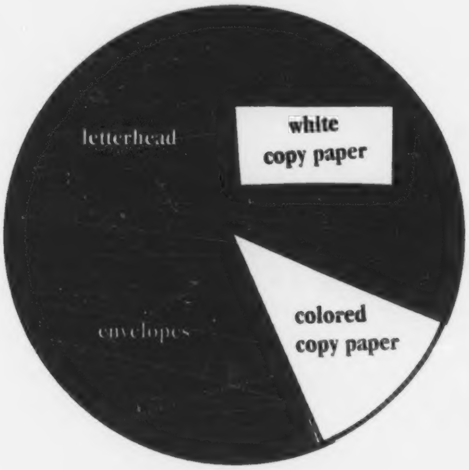


Practice Problem 3.12

You sell paper products. Letterhead accounted for what percentage of paper sales? (Use the graphic below.)

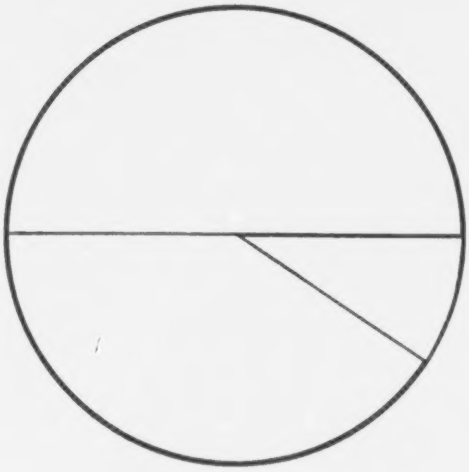
A. 15%
B. 25%
C. 30%
D. 60%
E. 66%

Ace Paper Company
Annual Paper Sales



Practice Problem 3.13

The size of each piece of the pie chart depends on the percentage of the whole that it represents. Label each section of the pie chart below with the correct percentage: 50%, 41%, 9%.



Bar Graph Practice Problems

Bar graphs are a good format for **comparing amounts**.

To read bar graphs, follow the top of the bar across to the labeled axis. The point on the labeled axis where they cross is the quantity illustrated by the bar.

Characteristics of bar graphs:

- Bar graphs can be **vertical or horizontal**.
- One axis always shows the labels for the **groups being compared**.
- The other axis shows the **number scale** for the amounts.
- **Parallel bars** or **rectangles** show the amounts.

Practice Problem 3.14

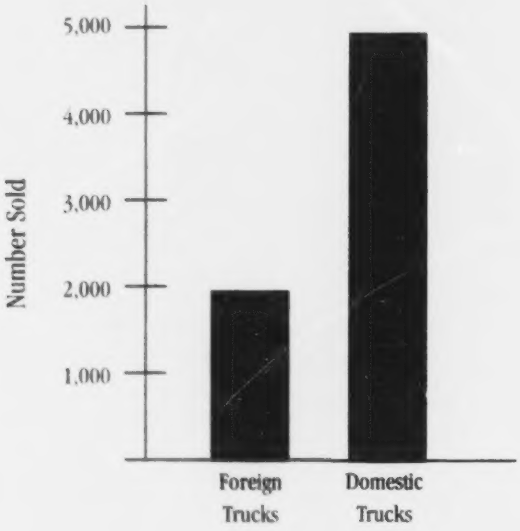
Were there more domestic or foreign truck sales this year at Truck City? ____________________

What quantity of each were sold by Truck City?

__________ Foreign trucks

__________ Domestic trucks

Truck City
Average Truck Sales
Current Year



Practice Problem 3.15

Draw a bar graph that shows the amount of trucks sold by the Car-a-Rama dealership in one month, using the data below.

1. Choose a scale for the amount/number axis.
2. Write labels for the four groups.
3. For each group, draw a bar from the horizontal axis up to the point even with the number of trucks sold.
4. Add a descriptive title.

Car-a-Rama Sales (current month)

Quantity	Manufacturer
8	Honda
2	Ford
2	Chevrolet
4	Mazda

Practice Problem 3.18

Bar graphs can show change over time. How many truck caps were sold by Truck City in 1998?

A. 100
B. 200
C. 300
D. 400
E. 500

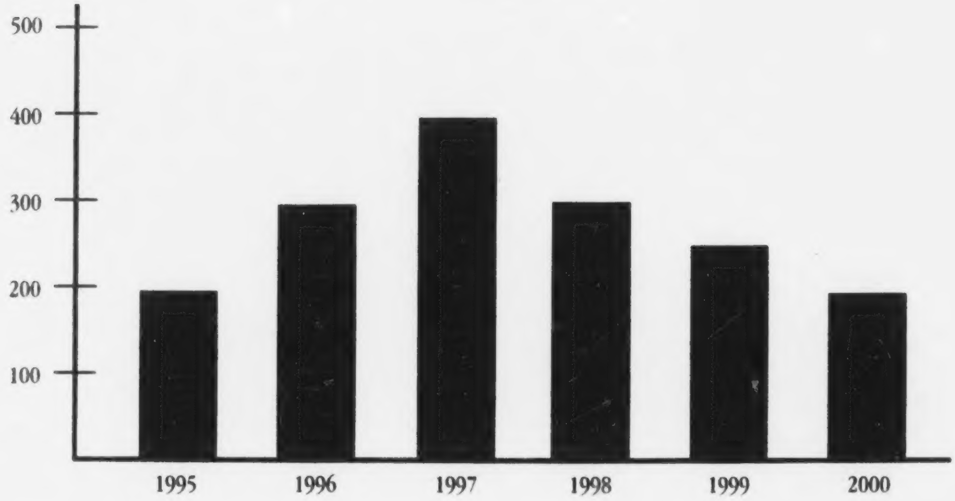
How many truck caps were sold by Truck City in 1999?

A. 200
B. 250
C. 300
D. 350
E. 400

Which year had the highest truck cap sales?

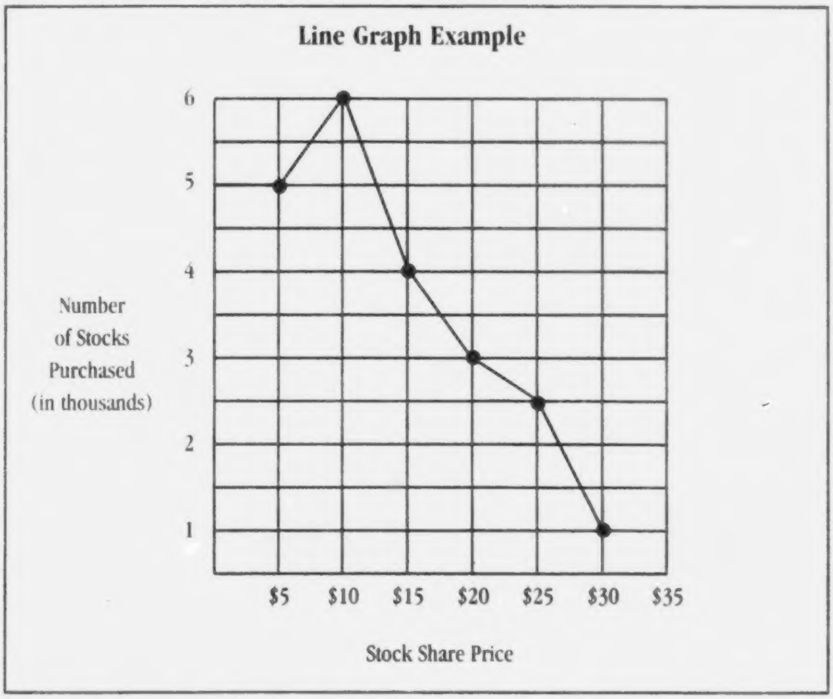
A. 1995
B. 1996
C. 1997
D. 1998
E. 1999

Truck City
Truck Caps Sold



Line Graph Practice Problems

Line graphs relate two sets of numbers. Each set contains different values of a different quantity or variable.



Take the following **steps** when reading a line graph:

1. Read the heading and labels of each axis to get a general idea of the graph's purpose.
2. Choose a number on either axis that matches the information you want to read.
3. Move straight up or over until you reach the line on the graph.
4. Move straight toward the other axis and read the corresponding number.

In the line graph above, for example, when the stock cost $30 per share, 1000 shares were purchased. Another way of looking at it is that 1000 shares were purchased when the stock price was $30 per share.

Practice Problem 3.17

According to the graphic, which year had the *greatest* number of Burger Boy franchises?

A. 1993
B. 1994
C. 1995
D. 1996
E. 1997

Which year had the *smallest* number of franchises?

A. 1990
B. 1991
C. 1992
D. 1993
E. 1994

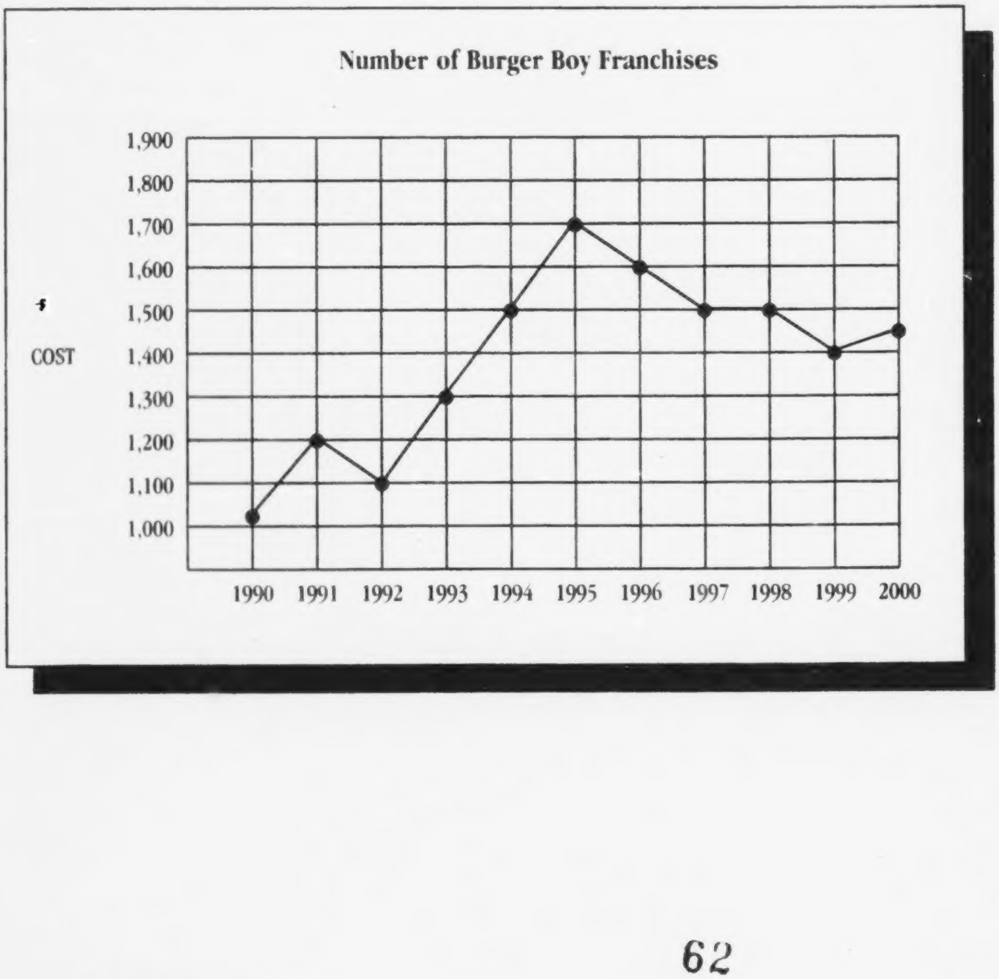


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Table Practice Problems

Tables are commonly used to store business information. Compared to text, they are easier and faster to read. Tables are actually groups of related lists. Examples of tables used in everyday life include calendars and television program schedule grids.

Characteristics of tables:

- The **title** indicates the **purpose**.
- **Columns** identify types of information. Each column has a heading.
- **Rows** give individual, related pieces of data from each column.

Practice Problem 3.18

What time does Sarah work on Saturday?
 A. 6 a.m.–2 p.m.
 B. 2 p.m.–10 p.m.
 C. 10 p.m.–6 a.m.
 D. Sarah does not work on Saturday.

How many days is Sarah scheduled to work this week?
 A. 1
 B. 2
 C. 3
 E. 5

Plant 1 Work Schedule
Week of January 15–22

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
6am–2pm	Raphael	Raphael	Raphael	Raphael	Raphael	Sarah	Sarah
2pm–10pm	Tom	Tom	Tom	Tom	Sarah	Tom	Tom
10pm–6am	Fred	Fred	Fred	Fred	Fred	Sam	Sam

Practice Problem 3.19

What is the monthly life insurance premium for a 55 year-old nonsmoking woman?

A. $25
B. $35
C. $38
D. $40
E. $48

Always Life Insurance
Monthly Premium Schedule

Age	Male, Tobacco-Using	Male, Non-Tobacco-Using	Female, Tobacco-Using	Female, Non-Tobacco-Using
25	$40	$30	$35	$25
30	42	32	38	28
35	44	34	40	30
40	46	36	42	32
45	48	38	44	34
50	50	40	46	35
55	52	42	48	38

64

Practice Problem 3.20

According to the Sales Representative table, what number should you call to reach Joan Collingsworth?

A. 614/889-7878
B. 302/272-4848
C. 666/543-4339
D. 405/949-4432
E. 302/272-4848

Sales Representative
Client List

Name	Company	Address	Phone Number
Jimmy Simms	People Builders International	7615 Deer Parkway Colombia, MD 43068	696/543-4339
Pat Barnhardt	Barnhardt Brickyard	5267 Stratford Avenue Powell OH 43065	614/889-7878
Tom Richie	Websites Unlimited	3398 E. 16th Avenue Miami, FL 33432	302/272-4848
Joan Collingsworth	Terminello & Associates	594 W. Broad Street Albuquerque, NM 64333	405/949-4432

Practice Problem 3.21

You need to make travel arrangements for your boss. She needs to travel from Columbus, Ohio to San Francisco, California. What will be her departure and arrival times?

A. Depart from Columbus at 2:59 p.m. and arrive in San Francisco at 11:15 p.m.
B. Depart from Columbus at 8:09 p.m. and arrive in San Francisco at 10:51 p.m.
C. Depart from Columbus at 8:09 p.m. and arrive in San Francisco at 11:15 p.m.
D. Depart from Columbus at 8:09 p.m. and arrive in San Francisco at 8:33 p.m.
E. Depart from Columbus at 2:59 p.m. and arrive in San Francisco at 10:30 p.m.

AIRLINE SCHEDULES

(All departure times are Columbus time. All arrivals are local city time.)

Columbus, OHIO

		depart	arrive
DENVER, CO	**FLT 621/263**	**8:09p**	**10:37p**
HONOLULU, HI	**FLT 275/1**	**10:49a**	**3:40p**
LONDON, England	**FLT 2621/720**	**1:45p**	**7:15a**
LOS ANGELES, CA	**FLT 117/7178**	**8:09p**	**10:51p**
MADRID, Spain	**FLT 236/904**	**2:59p**	**8:30a**
OSLOW, Norway	**FLT 236/816**	**2:59p**	**7:10a**
ROME, Italy	**FLT 236/840**	**2:59p**	**7:40a**
SAN FRANCISCO, CA	**FLT 117/553**	**8:09p**	**11:15p**
ST. LOUIS, MO	**FLT117**	**8:09p**	**8:33p**
TEL AVIV, Israel	**FLT 467**	**2:59p**	**10:30a**

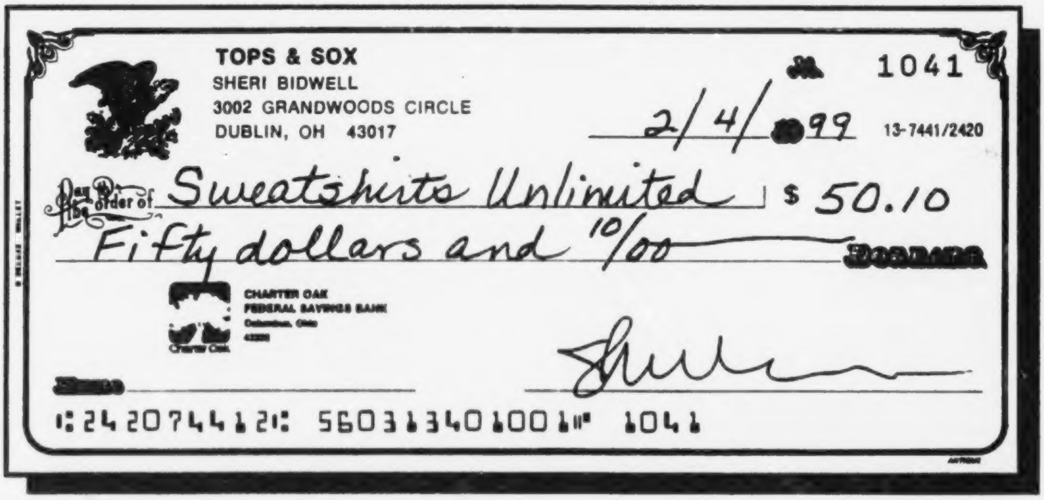
Form Practice Problems

Forms are used to obtain information about an individual or situation. Examples of forms include job applications, checks, deposit slips, and petty cash vouchers.

When reading or filling out forms, read each category and label carefully. Look for clues to the purpose of the form.

Practice Problem 3.22

What is the check's number?	How much is the check worth?
A. 104	A. 5.01
B. 1014	B. 10.41
C. 1040	C. 24.20
D. 1041	D. 44.12
E. 1042	E. 50.10



TOPS & SOX
SHERI BIDWELL
3002 GRANDWOODS CIRCLE
DUBLIN, OH 43017

1041

2/4/99

13-7441/2420

Pay To The order of Sweatshirts Unlimited $ 50.10

Fifty dollars and 10/00

CHARTER OAK
FEDERAL SAVINGS BANK

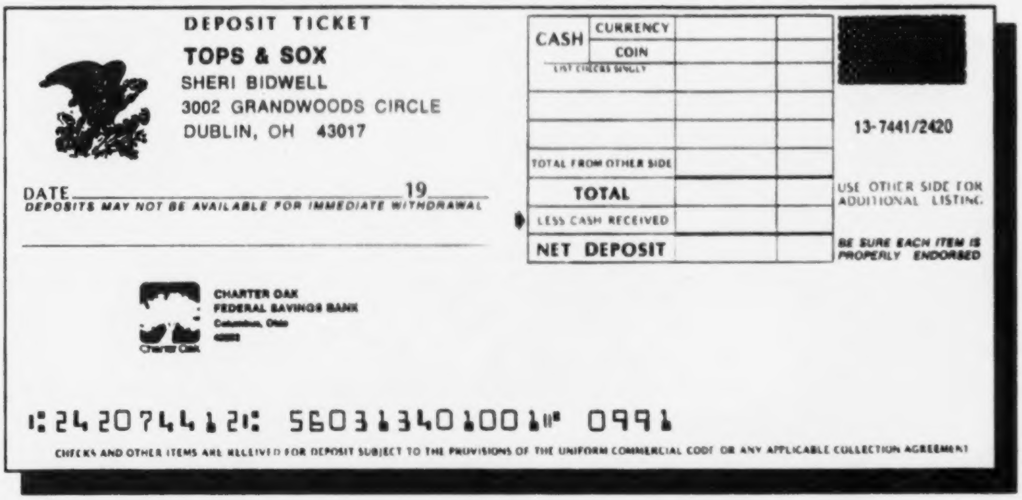
⑆242074412⑆ 560313401001⑈ 1041

Practice Problem 3.23

Insert the following information into the proper sections of the deposit slip:

Total:	$120
Date:	April 4, 1999
Check amount:	$100
Currency amount:	$20

(Note: You do not plan to withdraw cash.)



DEPOSIT TICKET

TOPS & SOX
SHERI BIDWELL
3002 GRANDWOODS CIRCLE
DUBLIN, OH 43017

DATE____________________19_____
DEPOSITS MAY NOT BE AVAILABLE FOR IMMEDIATE WITHDRAWAL

CASH	CURRENCY		
	COIN		
LIST CHECKS SINGLY			
TOTAL FROM OTHER SIDE			
TOTAL			
LESS CASH RECEIVED			
NET DEPOSIT			

[redacted]

13-7441/2420

USE OTHER SIDE FOR ADDITIONAL LISTING

BE SURE EACH ITEM IS PROPERLY ENDORSED

CHARTER OAK
FEDERAL SAVINGS BANK
Columbus, Ohio

Charter Oak

⑆242074412⑆ 560313401001⑈ 0991

CHECKS AND OTHER ITEMS ARE RECEIVED FOR DEPOSIT SUBJECT TO THE PROVISIONS OF THE UNIFORM COMMERCIAL CODE OR ANY APPLICABLE COLLECTION AGREEMENT

BEST COPY AVAILABLE

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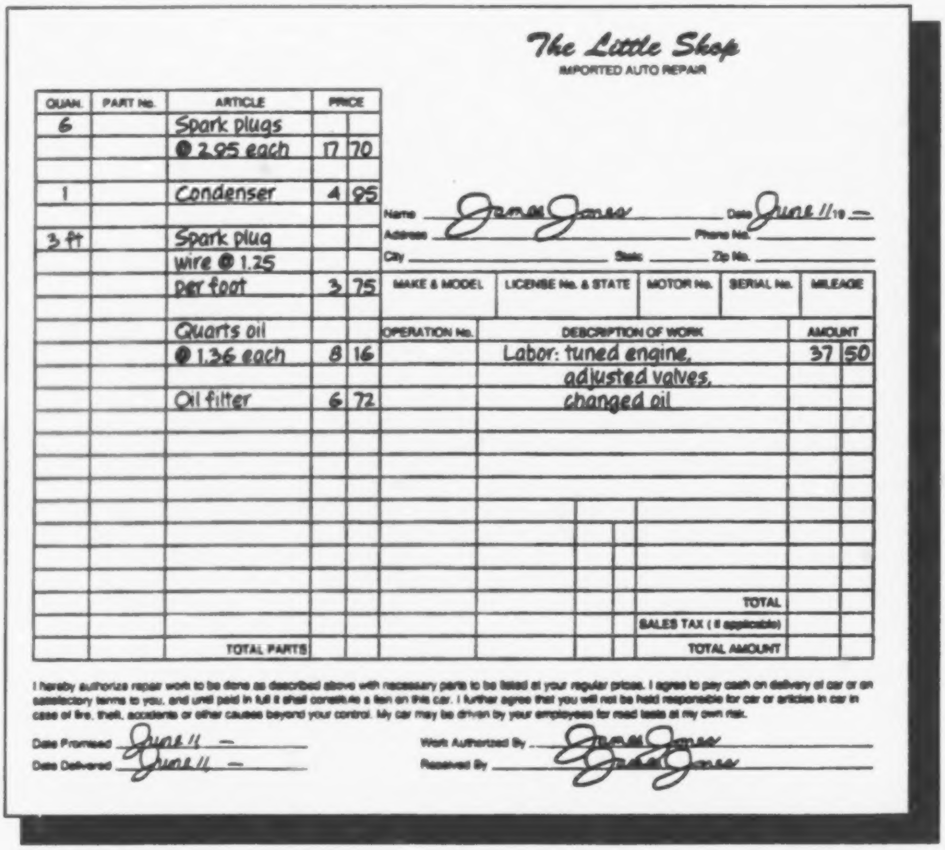
Practice Problem 3.24

Six quarts of oil were used. Write it in the proper place on this invoice.
The total cost of parts is $41.28. Write it in the proper place on this invoice.
The total for parts and labor (before tax) is $78.78. Write it in the proper place on this invoice.



The Little Shop
IMPORTED AUTO REPAIR

QUAN.	PART No.	ARTICLE	PRICE	
6		Spark plugs		
		@ 2.95 each	17	70
1		Condenser	4	95
3 ft		Spark plug		
		wire @ 1.25		
		per foot	3	75
		Quarts oil		
		@ 1.36 each	8	16
		Oil filter	6	72
		TOTAL PARTS		

Name James Jones Date June 11, 19 —
Address ____ Phone No. ____
City ____ State ____ Zip No. ____

MAKE & MODEL	LICENSE No. & STATE	MOTOR No.	SERIAL No.	MILEAGE

OPERATION No.	DESCRIPTION OF WORK	AMOUNT	
	Labor: tuned engine,	37	50
	adjusted valves,		
	changed oil		
	TOTAL		
	SALES TAX (if applicable)		
	TOTAL AMOUNT		

I hereby authorize repair work to be done as described above with necessary parts to be listed at your regular prices. I agree to pay cash on delivery of car or on satisfactory terms to you, and until paid in full it shall constitute a lien on this car. I further agree that you will not be held responsible for car or articles in car in case of fire, theft, accidents or other causes beyond your control. My car may be driven by your employees for road tests at my own risk.

Date Promised June 11 —
Date Delivered June 11 —
Work Authorized By James Jones
Received By James Jones

Answers to Improving to Level 3 Practice Problems

3.1 B. Row C, seat 36

3.2 D. Park Street

3.3 D. 10 chairs

3.4 B. Take elevator 2 only.

D. Take elevator 2 then elevator 1.

3.5 E. 8 inches

3.6 D. 16 teeth

B. 8

A. 1

3.7 C. Strip the old paper

3.8 D. 250 pounds

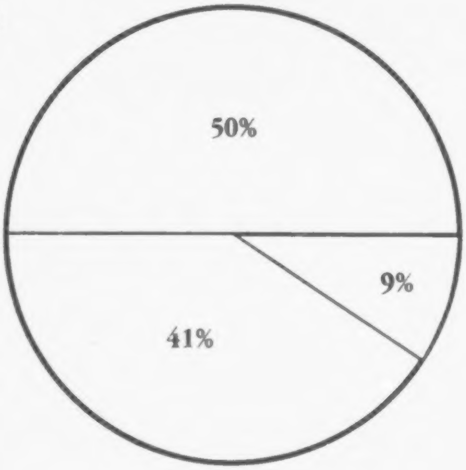
3.9 C. 50 mph

3.10 C. 1/2

3.11 A. 10%

3.12 B. 25%

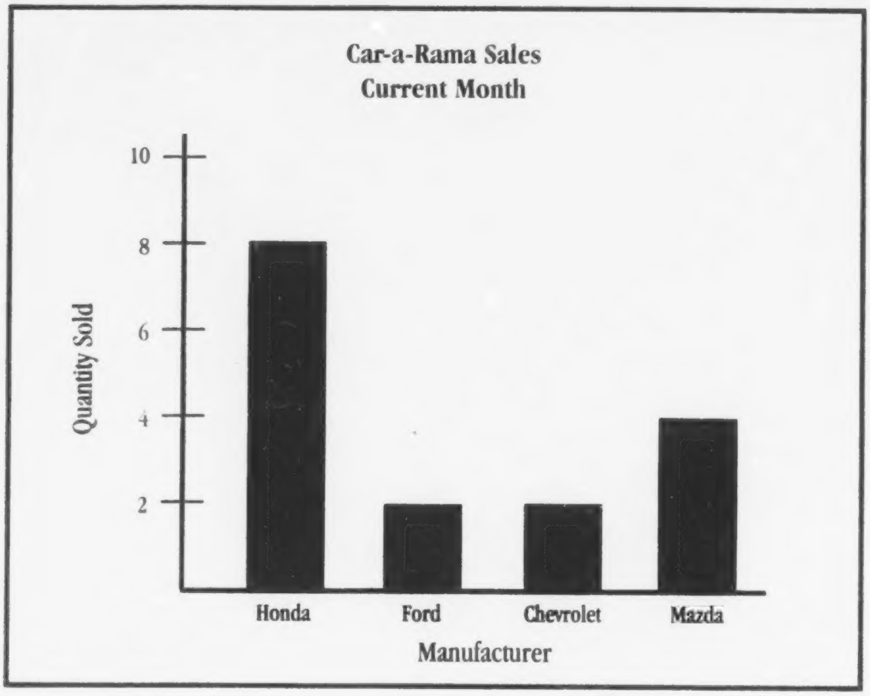
3.13



3.14 More domestic trucks were sold this year.

2,000 foreign and 5,000 domestic trucks were sold this year.

3.15



3.16 C. 300

B. 250

C. 1997

3.17 C. 1995

A. 1990

3.18 A. 6 a.m.–2 p.m.

C. 3

3.19 C. $38

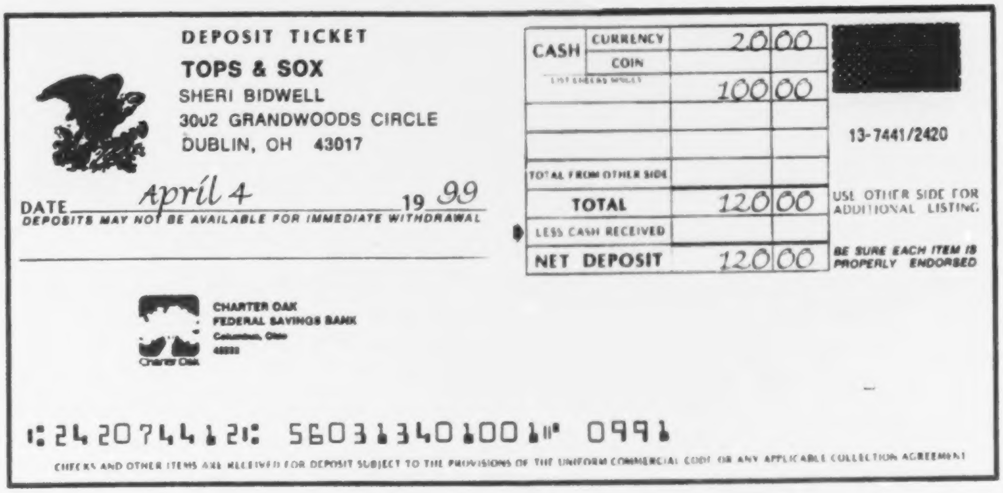
3.20 D. 405/949-4432

3.21 C. Depart from Columbus at 8:09 p.m. and arrive in San Francisco at 11:15 p.m.

3.22 D. 1041

E. 50.10

3.23



DEPOSIT TICKET

TOPS & SOX
SHERI BIDWELL
3002 GRANDWOODS CIRCLE
DUBLIN, OH 43017

DATE April 4 19 99
DEPOSITS MAY NOT BE AVAILABLE FOR IMMEDIATE WITHDRAWAL

CASH	CURRENCY	20	00
	COIN		
LIST CHECKS SINGLY		100	00
TOTAL FROM OTHER SIDE			
TOTAL		120	00
LESS CASH RECEIVED			
NET DEPOSIT		120	00

[redacted]

13-7441/2420

USE OTHER SIDE FOR ADDITIONAL LISTING

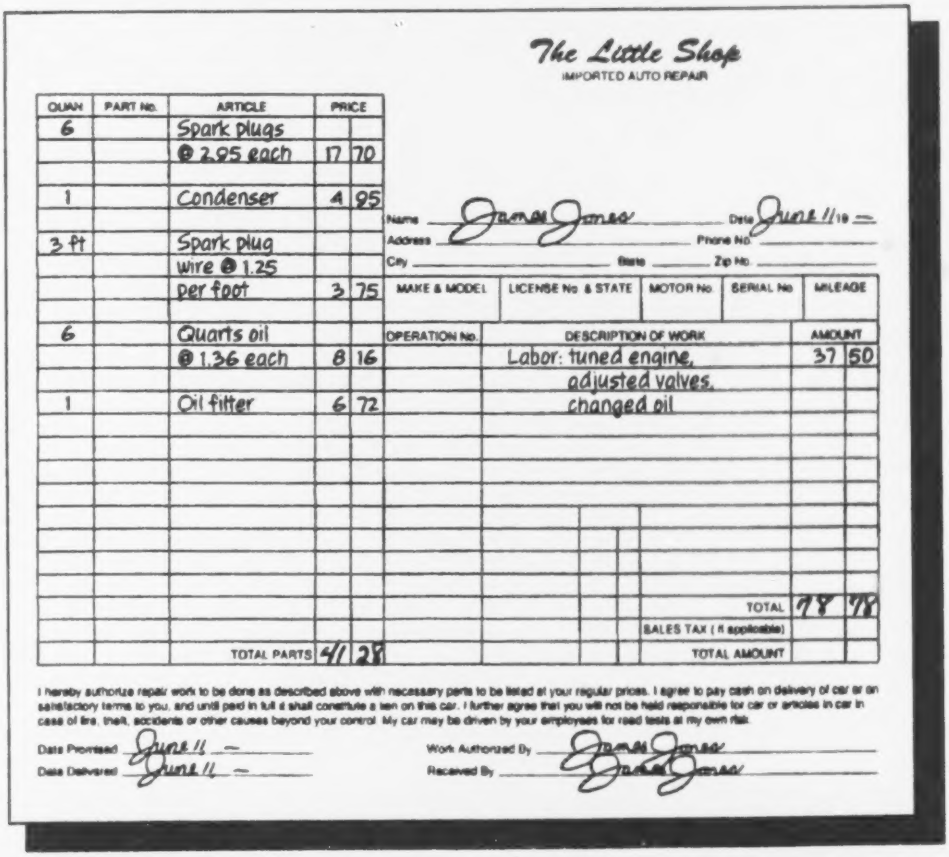
BE SURE EACH ITEM IS PROPERLY ENDORSED

CHARTER OAK
FEDERAL SAVINGS BANK
Charter Oak

⑆242074412⑆ 560313401001⑈ 0991

CHECKS AND OTHER ITEMS ARE RECEIVED FOR DEPOSIT SUBJECT TO THE PROVISIONS OF THE UNIFORM COMMERCIAL CODE OR ANY APPLICABLE COLLECTION AGREEMENT

3.24



The Little Shop
IMPORTED AUTO REPAIR

QUAN	PART No.	ARTICLE	PRICE	
6		Spark plugs		
		@ 2.95 each	17	70
1		Condenser	4	95
3 ft		Spark plug		
		wire @ 1.25		
		per foot	3	75
6		Quarts oil		
		@ 1.36 each	8	16
1		Oil filter	6	72
		TOTAL PARTS	41	28

Name James Jones Date June 11 19 —
Address Phone No.
City State Zip No.

MAKE & MODEL	LICENSE No. & STATE	MOTOR No.	SERIAL No.	MILEAGE

OPERATION No.	DESCRIPTION OF WORK	AMOUNT	
	Labor: tuned engine,	37	50
	adjusted valves,		
	changed oil		
	TOTAL	78	78
	SALES TAX (if applicable)		
	TOTAL AMOUNT		

I hereby authorize repair work to be done as described above with necessary parts to be listed at your regular prices. I agree to pay cash on delivery of car or on satisfactory terms to you, and until paid in full it shall constitute a lien on this car. I further agree that you will not be held responsible for car or articles in car in case of fire, theft, accidents or other causes beyond your control. My car may be driven by your employees for road tests at my own risk.

Date Promised June 11 —
Date Delivered June 11 —
Work Authorized By James Jones
Received By James Jones

Insert the

“Improving to Level 4”

Divider Here

Locating Information—Improving to Level 4

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Answers to Improving to Level 4 Practice Problems 92

Characteristics of Level 4 Graphics

Level 4 graphics are more complex than those found at Level 3. However, they are still straightforward. The learner is required to pay attention to detail and to watch for small variations between or within graphics.

Level 4 Locating Information Skills

The Level 4 Locating Information skills include all of the Level 3 skills, plus the following:

- ***Find* several pieces of information** from a straightforward graphic.
- ***Summarize* and/or *compare* information and trends** in one straightforward graphic.
- ***Summarize* and/or *compare* information and trends** in more than one straightforward workplace graphic (e.g. a bar chart and a table showing related information).
- **Determine the *relationship*** among graphics.

The learning activities and practice problems in this section will help learners develop and practice Level 4 Locating Information skills.

Important! When developing learning activities and practice problems, instructors should focus on asking learners to practice these Level 4 skills.

Learning Activities for Helping Learners Improve to Level 4

Introduction

At Level 4, learners should be able to read and interpret straightforward graphics to find information and to summarize and compare trends and main points. The following learning activities will help them develop and practice Level 4 skills. The activities can be done individually or in pairs. In some cases, it may be appropriate to ask learners to work in teams of 3–4.

In addition to the learning activities described below, instructors are encouraged to *adapt* some of the Level 3 learning activities (pp. 31–37) by increasing the *complexity* of each type of graphic and requiring learners to do more with the graphics (e.g., find more than one piece of information, summarize and/or compare trends and main points).

Note: Encourage learners who are beginning their Locating Information study at Improving to Level 4 to *review* basic information about graphics. Ask them to read the Level 3 information and complete the practice problems. (This is not necessary for success at Level 4. However, it may give learners insights into the ways in which Work Keys identifies components of graphics and the types of questions that might be found on the Work Keys Locating Information assessment.)

Learning Activities

The following learning activities are recommended for helping learners Improve to Level 4 of Locating Information:

- When helping learners read and interpret all types of graphics, guide them through the following steps:

    1. Determine what **type** of graphic it is.
    2. Read the title and subtitles to gain an understanding of the **subject**.
    3. Read the **labels**, **captions**, **legends**, and **keys**.
    4. Look for **units of measurement** (e.g., years, pounds, feet).
    5. Determine the **purpose** of the graphic (e.g., change over time, how something is divided, list of data).
    6. Read the **text** before and/or after the graphic (to use the context to understand the graphic).

7. Look for words that indicate **trends**.

8. Look for **relationships** between graphics. If several documents or graphs are in a group, check to see if they are related. Determine if the same kind of information is in more than one of the graphics. Determine if the graphics contain similar words.

- When helping learners read and interpret all types of graphics, give them opportunities to practice:
  - **Eliminating information** that is not required to complete a task or solve a problem. Learners will often encounter information that is extraneous to the task at hand.
  - Working with **several pieces of data** (or several graphics) to solve one problem.
  - Using **headings** and **labels** to clarify tasks and the purposes of specific graphics.
- Have learners practice **making comparisons** by using different *criteria* to sort data. The data might be in table or chart format. Examples:
  - Compare the sales made each month to determine which month has the highest sales.
  - Compare a map of customer locations to determine which region, state, or city has the most customers.
  - Simultaneously compare the sources and costs of raw materials used this year with those used in previous years.
- Have learners make line charts that include at least two lines. Ask them to **make comparisons** between the data illustrated on those lines.
- Give learners mileage charts and/or maps. Ask questions that help them practice **sorting** and **generalizing** skills. (Mileage charts can be found on road maps, in atlases, and in AAA Guide Books.) Ask learners questions such as:
  - Which cities are within 100 miles of their homes?
  - Which cities are within 500 miles of a specified location?
  - How many *major* cities are in a specified state?
- Instruct learners to use maps and mileage charts to **make decisions**. For example, have them choose the fastest and/or shortest route from one location to another.

- Ask teams of learners to **develop a plan** for hosting someone visiting one of their workplaces for a one-day meeting. (If they are not currently working, have them imagine they work for an existing business or create a fictitious one.)

  Note: To keep this learning activity at a Level 4, the materials used should be relatively straightforward. To avoid using materials that are too complex (i.e., Level 5), instructors should provide appropriate airplane schedules, car rental schedules, and maps for learners. (Appendix B lists several Internet sites where this type of information is available.)

  Teams should do one or more of the following:

  - Use airplane schedules to determine the best arrival and departure times, airlines, and flight numbers.
  - Determine car rental information, including locations and rates.
  - Use city maps to determine the best routes to take from the airport to the hotel and business locations.
  - Select a hotel that is near the business.

- Get tables and charts from the Internet. For example, AddALL Books gives comparisons of online book suppliers and several other details about each. Ask learners questions that help them practice **sorting information** and **making generalizations** (e.g., which cities' populations are larger than 50,000?). To do this within a reasonable amount of time, they must be able to eliminate extraneous (unnecessary) information.

- Copy charts, maps, and schedules from telephone books or the Internet. Ask learners to **find specific details** from these graphics. These tasks also require learners to eliminate unneeded (extraneous) information.

- Have learners draw diagrams that **show the layout** of a banquet setup, dining room, or building.

- Have learners **find information** from graphics. For example, they can:

  - Use maps to identify and follow travel routes across a city or state.
  - Use layouts to identify and follow exit plans from buildings.
  - Use diagrams to show how to assemble a machine.

- Ask learners to **read a variety of instrument gauges** (e.g., multimeters).

- Have learners **flowchart specific, straightforward procedures** (e.g., food preparation, recipes, safety or sanitation procedures). Try to include those used in the workplace. Once completed, have other learners write out the procedure, using the flowchart.

- Give learners several different forms, such as catalog order forms, sales slips, and credit card receipts. Use them to give practice in **finding specific details** from each completed order form, sales slip, or credit card receipt. This exercise will help them learn that:

    - The *structures* of forms with similar purposes often differ.
    - Attention to *detail* is required to use such forms.
    - They can use a *methodical approach* to examine and interpret graphics.

- Ask learner teams to **design forms** for other teams to fill out. If learners need ideas, suggest categories of forms used in the workplace, such as sales order forms, absence or leave forms, work orders, expense reports, employment performance review forms, and accident reports.

- Have learners **complete forms** that *meet specified criteria*. For example, use class registration materials from adult education or community college programs, instructing learners to choose courses that meet specific time, cost, or credit requirements.

- Ask learners to work in teams to **make a table or chart** that illustrates the team's characteristics. For example, each learner's name, height, hair color, and age could be charted. Then teams charts could be compared to *summarize* information (e.g., Which team has the tallest or oldest members?).

- Help learners **summarize trends** (i.e., changes over time) by charting temperatures or rainfall for a specified area.

- Have learners write short paragraphs to **summarize trends** shown in bar or line graphs. This will help them develop their summarizing skills.

- Give learners practice at first **summarizing main points and trends**, and then **drawing conclusions**. Examples:

    - Show learners pages from an appointment book and ask them to determine when the book's owner is free to meet. Give them specific *criteria* (e.g., before lunch, for one hour, or ending by 4:00 p.m.). To make it more challenging, have them use two appointment books to set up a meeting between two people. Give specific criteria, if appropriate.

  - Have learners **examine data** included in pie charts, line charts, bar graphs, or tables **and draw conclusions**. For example, they may determine which is a company's greatest expense, which item is the business's best seller, which salesperson sells the most items, or in which month the company's earnings are the lowest.

- Have learners **use two tables, charts, and/or graphs** to gather information. Examples:

  - Use United Parcel Service (UPS), RPS, or U.S. Postal Service shipping charts to determine package weights and then shipping costs.

  - Use production tables to determine the number of parts needed, then consult parts-ordering catalogs to identify the part numbers and other ordering information.

- Give learners the tables and charts in consumer magazines (e.g., *Consumer Reports, Consumer Digest*). Have them interpret the information and **summarize the main points**.

- Give learners a Level 4 graphic that is interpreted incorrectly and have them **find mistakes** and **make corrections**.

- Have learners write a paragraph to explain *how* they interpreted a graphic (i.e., to describe their graphic-reading process).

Practice Problems for Improving to Level 4

The following practice problems will help learners improve to Locating Information Level 4. These problems resemble those on the Work Keys Locating Information Assessment.

Each problem requires learners to either *find* multiple pieces of information, *summarize* or *compare* trends and main points, or use more than one straightforward graphic to complete a task. Instructors are encouraged to use Level 4 graphics to develop additional practice problems for classroom use.

Answers to the Level 4 practice problems are provided on pp. 92–93.

Map, Layout, and Floor Plan Practice Problems

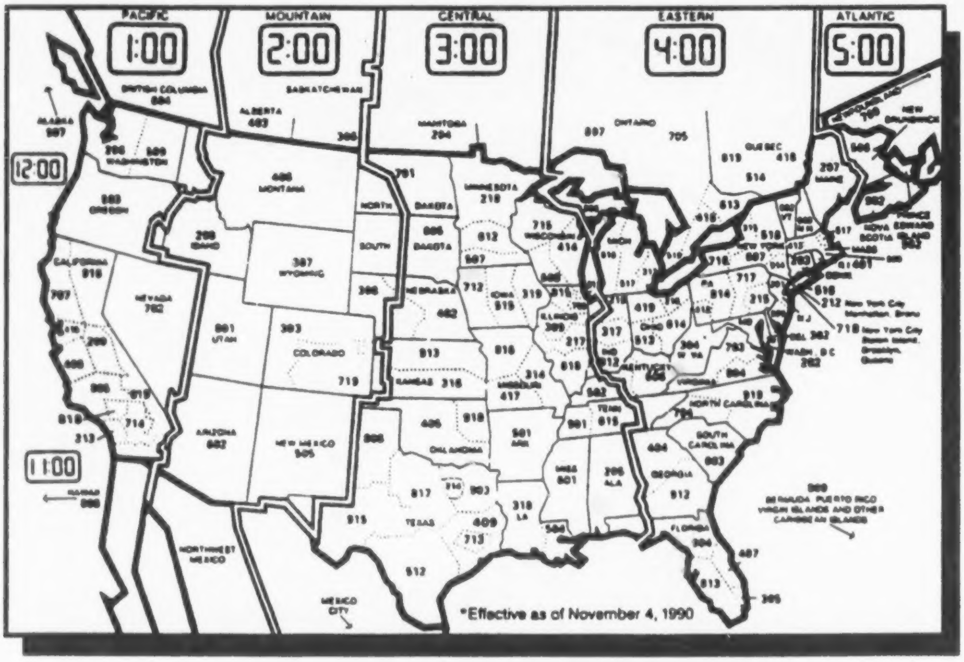
Practice Problem 4.1

If it is 8:00 a.m. in Arizona, what time is it in Florida? (Use the time zone map below.)

A. 10:00 a.m.
B. 9:00 a.m.
C. 8:00 a.m.
D. 7:00 a.m.
E. 6:00 a.m.

If it is 9:00 p.m. in Hawaii, what time is it in Minnesota?

A. 1:00 a.m.
B. 12:00 p.m.
C. 3:00 p.m.
D. 4:00 p.m.
E. 5:00 p.m.


PACIFIC
1:00
MOUNTAIN
2:00
CENTRAL
3:00
EASTERN
4:00
ATLANTIC
5:00
12:00
11:00
ALASKA
HAWAII
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
MANITOBA
ONTARIO
QUEBEC
WASHINGTON
OREGON
CALIFORNIA
NEVADA
IDAHO
MONTANA
WYOMING
UTAH
COLORADO
ARIZONA
NEW MEXICO
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
KANSAS
OKLAHOMA
TEXAS
MINNESOTA
IOWA
MISSOURI
ARK
LA
WISCONSIN
ILLINOIS
MICH
OHIO
KENTUCKY
TENN
MISS
ALA
GEORGIA
FLORIDA
SOUTH CAROLINA
NORTH CAROLINA
VIRGINIA
W VA
PA
NEW YORK
MAINE
NOVA SCOTIA
PRINCE EDWARD ISLAND
NORTHWEST MEXICO
MEXICO CITY
BERMUDA PUERTO RICO VIRGIN ISLANDS AND OTHER CARIBBEAN ISLANDS
WASH. D.C.
New York City Manhattan, Bronx
New York City Staten Island, Brooklyn, Queens
*Effective as of November 4, 1990

Practice Problem 4.2

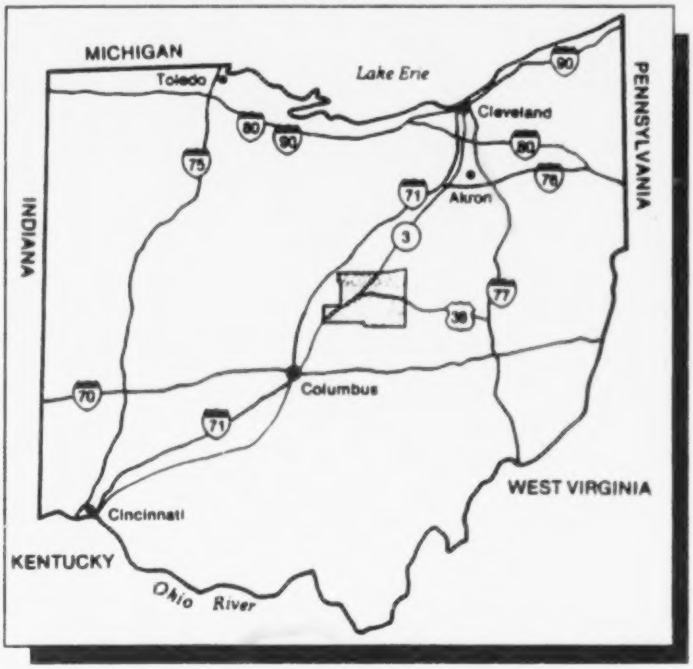
You are scheduling a meeting for all Ohio sales representatives. It will be held in Cincinnati.

Use the Ohio map to determine which interstate highway the Akron sales representatives will take.

A. I-70
B. I-71
C. I-75
D. I-77
E. I-90

Which interstate highway will Toledo sales representatives take?

A. I-70
B. I-71
C. I-75
D. I-77
E. I-90


MICHIGAN
Toledo
Lake Erie
90
Cleveland
80
90
80
75
76
71
Akron
INDIANA
PENNSYLVANIA
3
77
36
70
Columbus
71
WEST VIRGINIA
Cincinnati
KENTUCKY
Ohio River

BEST COPY AVAILABLE

Practice Problem 4.3

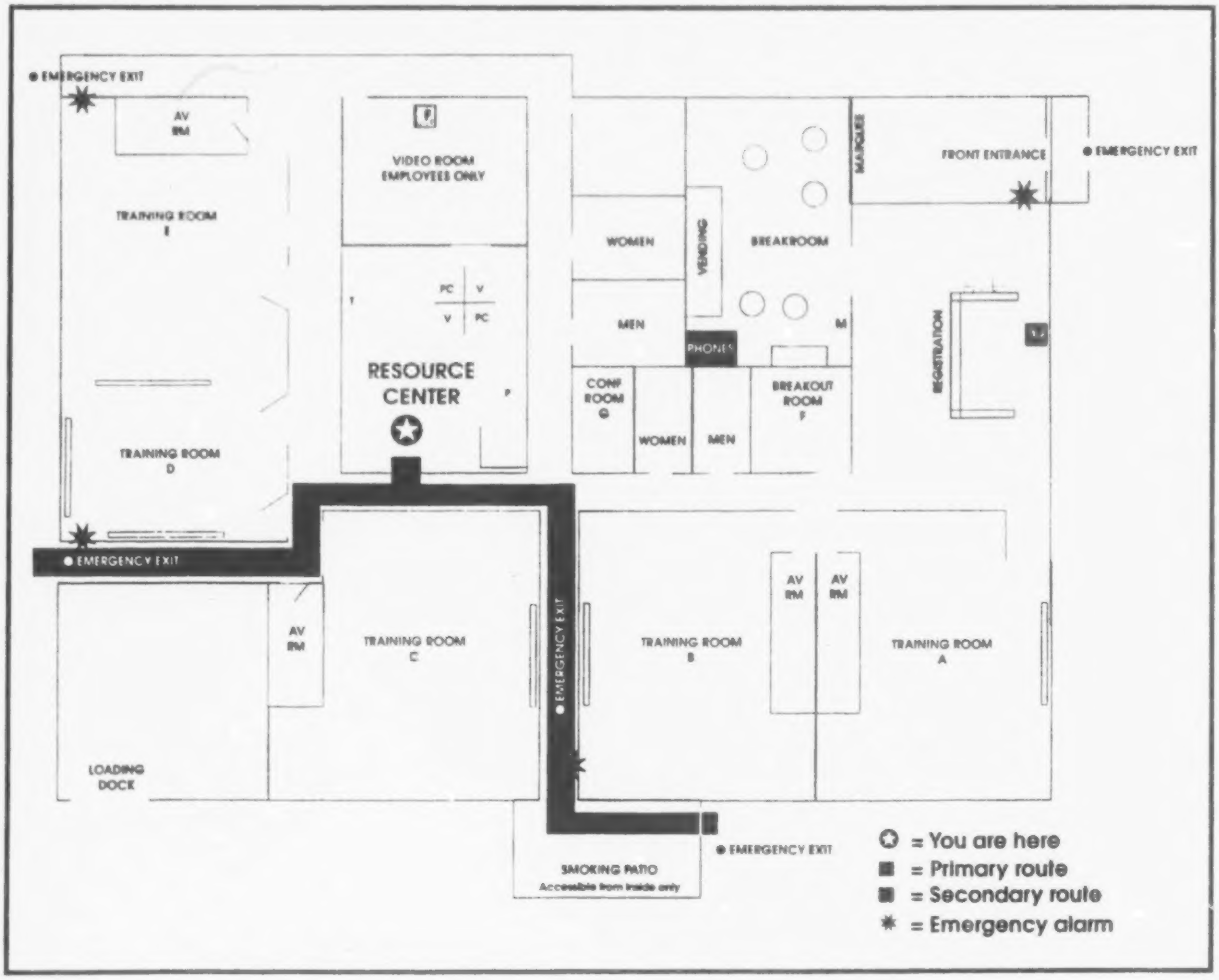
You work in the resource center of the OCOSH building. In case of an emergency, which exit is the closest?

A. The exit near Training Room A
B. The exit near Training Room D
C. The exit near Training Room E
D. The exit at the Smoking Patio
E. The exit at the Front Entrance

How many training rooms are there in the OCOSH building?

A. 3 training rooms
B. 4 training rooms
C. 5 training rooms
D. 6 training rooms
E. 7 training rooms

OCOSH Emergency Evacuation
Resource Center


● EMERGENCY EXIT
AV RM
VIDEO ROOM EMPLOYEES ONLY
TRAINING ROOM E
MARQUEE
FRONT ENTRANCE
● EMERGENCY EXIT
WOMEN
VENDING
BREAKROOM
PC V
V PC
MEN
PHONES
M
REGISTRATION
RESOURCE CENTER
CONF ROOM G
BREAKOUT ROOM F
WOMEN
MEN
TRAINING ROOM D
● EMERGENCY EXIT
AV RM
AV RM
AV RM
TRAINING ROOM C
● EMERGENCY EXIT
TRAINING ROOM B
TRAINING ROOM A
LOADING DOCK
SMOKING PATIO
Accessible from inside only
● EMERGENCY EXIT
✪ = You are here
■ = Primary route
■ = Secondary route
✷ = Emergency alarm

Practice Problem 4.4

The following diagram shows a region in which you will need to drive. It includes the distance in miles and the driving times between towns.

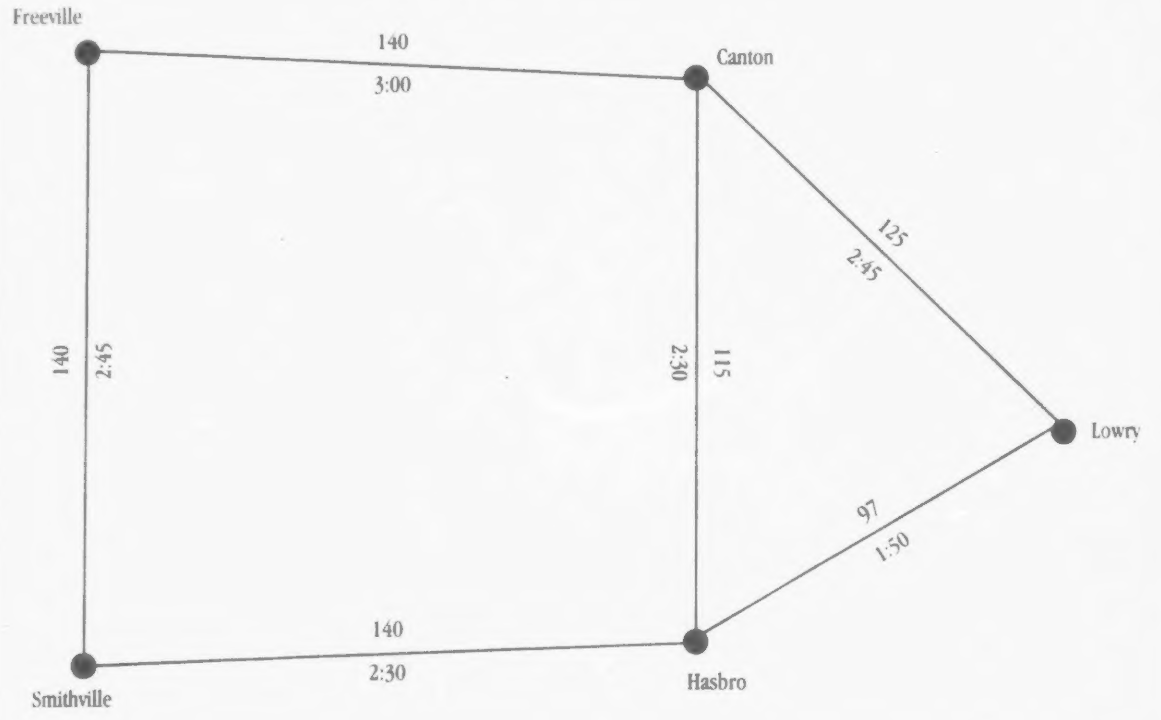
What is the driving distance when traveling from Freeville to Smithville?

A. 97 miles
B. 115 miles
C. 125 miles
D. 130 miles
E. 140 miles

What is the shortest driving time between Canton and Hasbro?

A. 1 hour 50 minutes
B. 2 hours 30 minutes
C. 2 hours 45 minutes
D. 3 hours
E. 4 hours 35 minutes

Regional Driving Distances and Times


Freeville
140
3:00
Canton
125
2:45
140
2:45
2:30
115
Lowry
97
1:50
140
2:30
Smithville
Hasbro

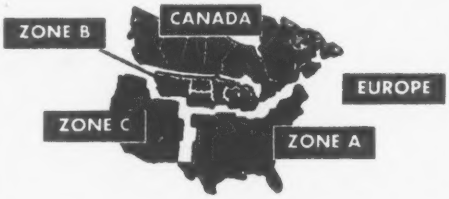
Practice Problem 4.5

Your company received a special offer from an airline's frequent flyer program. Any employee may get discounts for traveling, as described below. You are hoping to fly from New York to California. How much is the roundtrip airfare?

A. $208
B. $248
C. $278
D. $328
E. $350

Your boss asked you to check on the rates for a trip from California to Europe. How much is that roundtrip airfare?

A. $248
B. $328
C. $350
D. $424
E. $500



TRAVEL REGIONS**	ROUNDTRIP FARE PER PERSON***
Travel within Zone A or Zone B	$208
Travel from Zone A/B/C to Canada	$248
Travel between Zone B and Zone A or C	$278
Travel between Zone A and Zone C	$328
Travel from Zone A to Europe	$350
Travel from Zone B to Europe	$424
Travel from Zone C to Europe	$500

Diagram Practice Problem

Practice Problem 4.6

You work in a dental lab. The instructions from the dentist tell you to put a cap on molar #2. Will the top of the cap have a sharp or blunt surface?

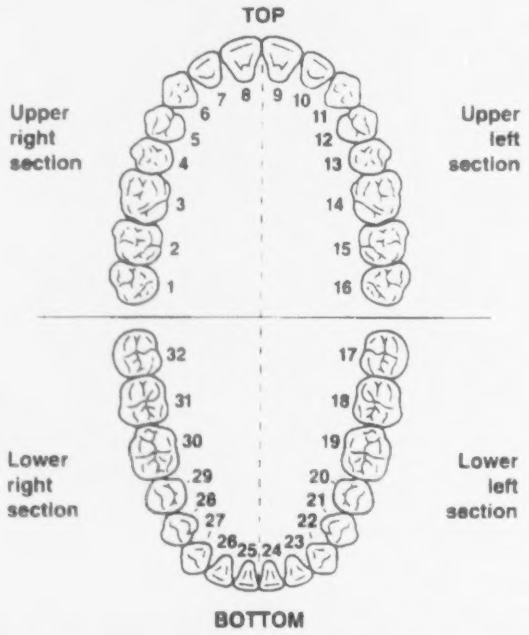
A. Sharp

B. Blunt

Types of Teeth

Type	Features	Function	Numbers
Incisors	thin, sharp edge	biting	7, 8, 9, 10 26, 25, 24, 23
Cuspids	long root, thick enamel	cutting and tearing	6, 11 27, 22
Premolars	broad crown	grasping and tearing	4, 5, 12, 13 29, 28, 21, 20
Molars	short, blunt surface	grinding	1, 2, 3, 14, 15, 16 32, 31, 30, 19, 18, 17

Dental Diagram


TOP
Upper right section
Upper left section
Lower right section
Lower left section
BOTTOM
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

Flowchart Practice Problem

Practice Problem 4.7

You are a new employee at Kole Communications, working as a purchasing assistant. Who do you report to?

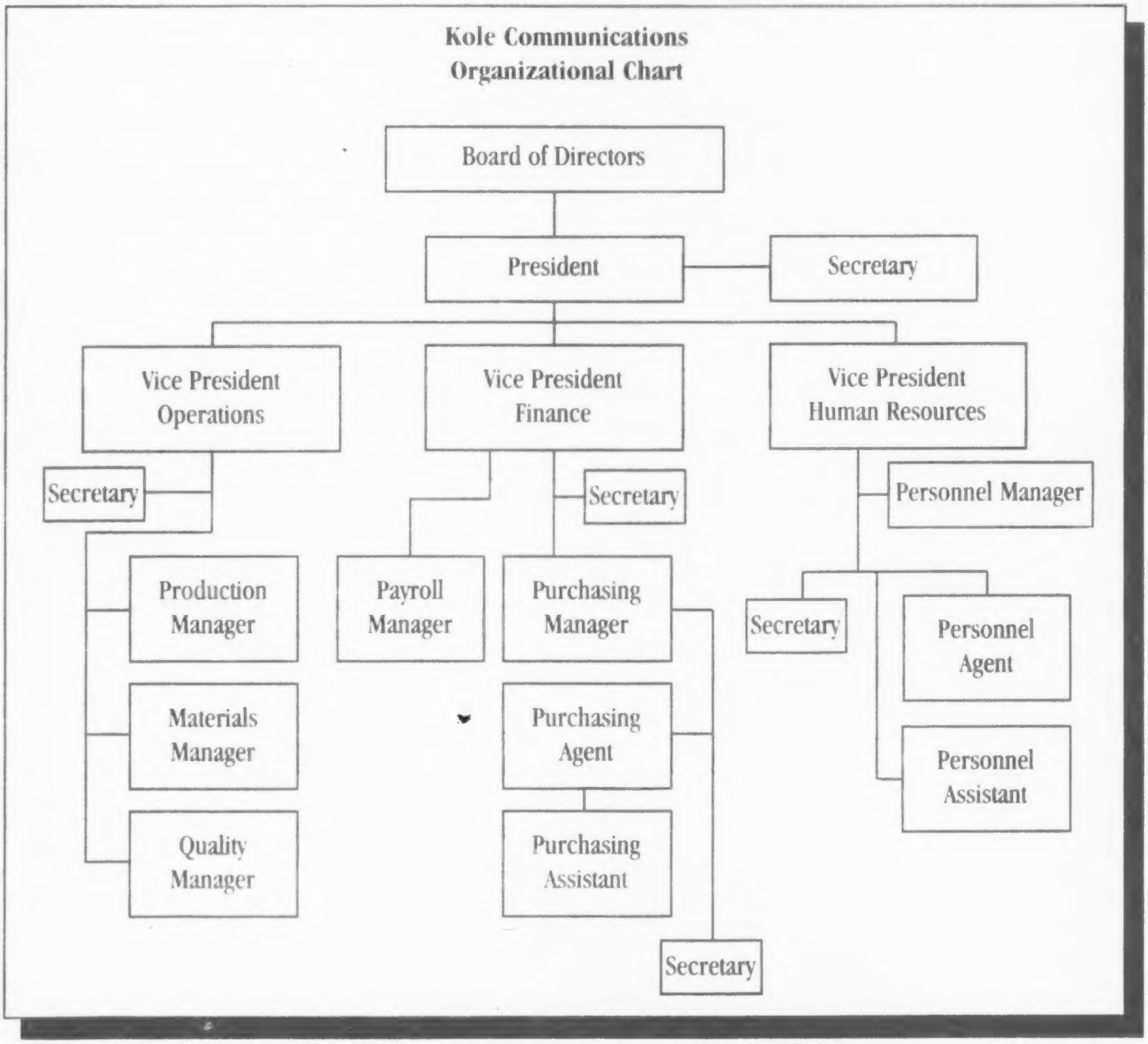
A. Vice President for Finance
B. Purchasing Manager
C. Purchasing Agent
D. Payroll Manger
E. Personnel Manager

Are there more managers or vice presidents at Kole Communications?

A. There are more vice presidents.
B. There are more managers.

Does each manager have an assistant?

A. Yes
B. No


Kole Communications
Organizational Chart
Board of Directors
President
Secretary
Vice President Operations
Vice President Finance
Vice President Human Resources
Secretary
Secretary
Personnel Manager
Production Manager
Payroll Manager
Purchasing Manager
Secretary
Personnel Agent
Materials Manager
Purchasing Agent
Personnel Assistant
Quality Manager
Purchasing Assistant
Secretary

Gauge Practice Problems

Practice Problem 4.8

You are using a multimeter to test whether a battery is still good. When attached to each battery terminal, the meter shows the reading illustrated below. What does the reading tell you?

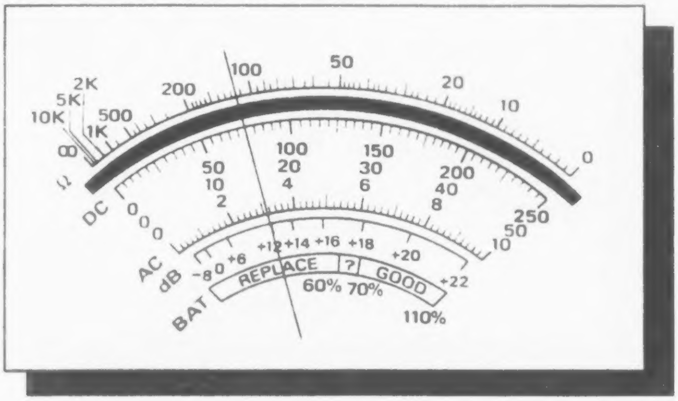
A. The battery is good.
B. The battery should be replaced.

What is the criteria for battery replacement?

A. It needs to have 50% power.
B. It needs to have less than 60% power.
C. It needs to have at least 70% power.
D. It needs to have at least 80% power.
E. It needs to have 110% power.

How much direct current (DC) is flowing from the tested battery?

A. 10 volts
B. 50 volts
C. 75 volts
D. 100 volts
E. 125 volts


Ω
∞
10K
5K
2K
1K
500
200
100
50
20
10
0
DC
0
0
0
50
10
2
100
20
4
150
30
6
200
40
8
250
50
10
AC
dB
-8
0
+6
+12
+14
+16
+18
+20
+22
BAT
REPLACE
?
GOOD
60%
70%
110%

Pie Chart Practice Problems

Practice Problem 4.9

You have been charged with recommending which charity your company will support. One method for gathering information is to examine how charitable funds are allocated.

Approximately what percentage of each donated UNICEF dollar goes to program planning?

A. 3%
B. 6%
C. 12%
D. 14%
E. 33%

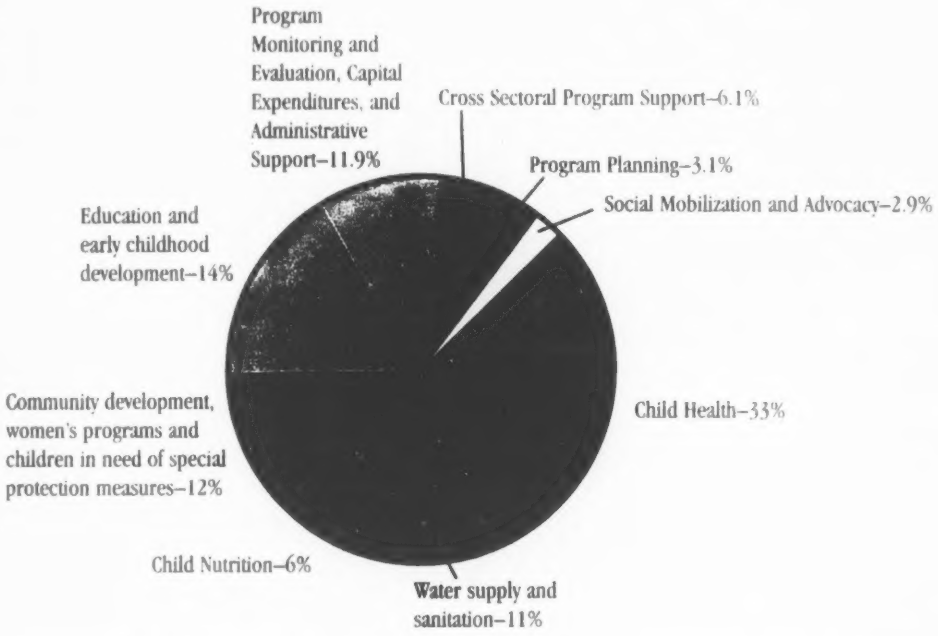
What are UNICEF's two highest allocations?

A. Child health and program monitoring and evaluation
B. Child health and education/early childhood development
C. Child health and community development
D. Child development and water supply/sanitation
E. Education/early childhood development and water supply/sanitation

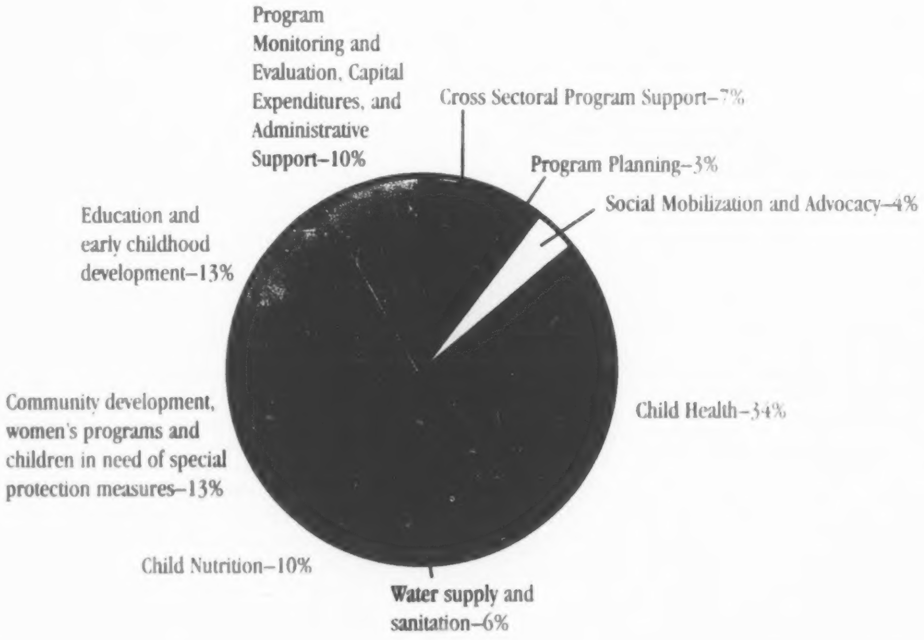
One indicator of a charity's effectiveness is the amount of money that is spent on program administration and monitoring. Which charity spends *the least* of each donated dollar on program monitoring/evaluation, capital expenditures, and administrative support?

A. UNICEF
B. CORE

How UNICEF Allocates Its Resources

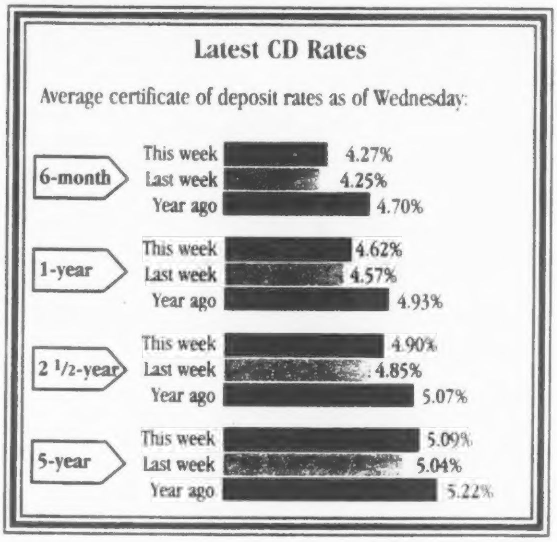


How CORE Allocates Its Resources



Bar Graph Practice Problems

Practice Problem 4.10


Latest CD Rates

Average certificate of deposit rates as of Wednesday:

Are the rates higher for 1-year or 5-year certificates of deposit?

A. 1-year CDs
B. 5-year CDs

When were rates highest: this year or last year?

A. This year
B. Last year

What is the current interest rate for a 2 1/2-year certificate of deposit?

A. 4.62%
B. 4.85%
C. 4.90%
D. 5.07%
E. 5.09%

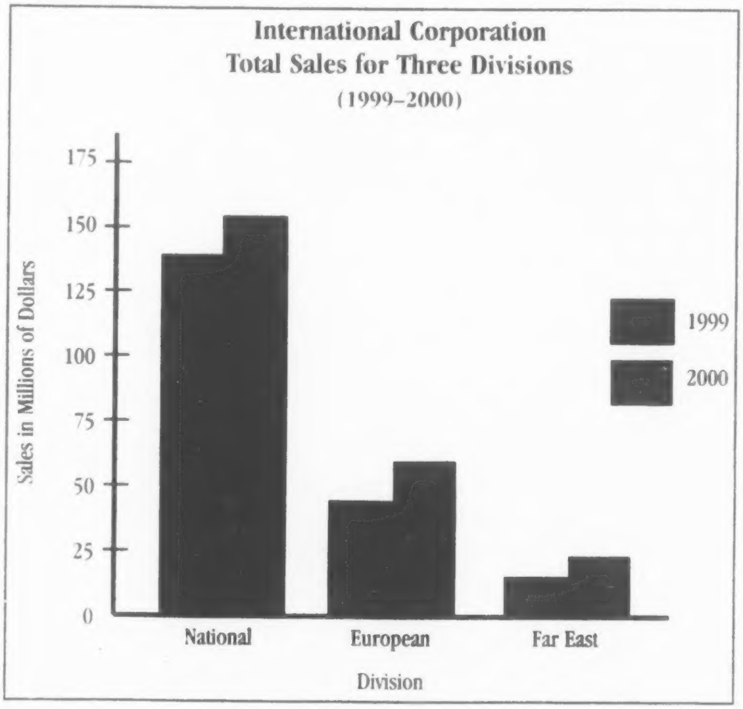
Practice Problem 4.11

You work in the sales office of the International Corporation. You are responsible for analyzing sales in three divisions: National (U.S.), European, and Far East. Have Far East sales increased or decreased?

A. Increased
B. Decreased

Which division had the highest sales in 2000? What were its annual sales?

A. European, 55 million dollars
B. National, 60 million dollars
C. National, 140 million dollars
D. National, 150 million dollars
E. National, 160 million dollars


International Corporation
Total Sales for Three Divisions
(1999–2000)

Line Graph Practice Problems

Practice Problem 4.12

You are reviewing the annual report for the mutual fund in which you have invested your retirement money. The following line graph shows the performance of your mutual fund over the past 10 years. It assumes that an initial investment of $10,000 was made January 1, 1990.

The Russell 2000 Fund consists of an index of funds that is comparable to the mutual fund you own.

Is your mutual fund performing better or worse than the Russell 2000?

A. Better
B. Worse

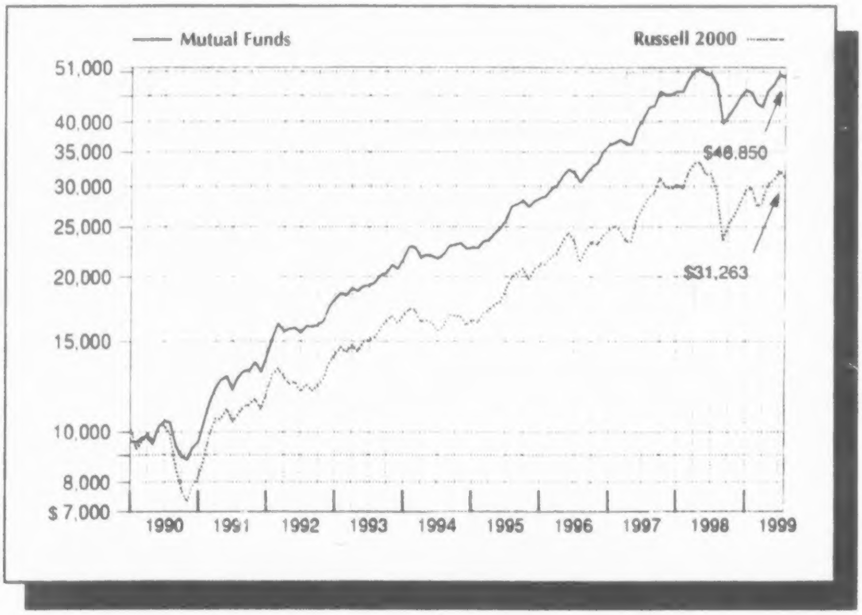
Based on the information provided in the graph, is your mutual fund a successful investment?

A. Yes
B. No

Explain: ____

____

____



Practice Problem 4.13

You work for a consumer protection agency. When you investigate the increase in car prices, you organize the information in the line graph below.

Which has increased more quickly between 1969 and 1999: average new-car prices or median family income?

A. Average new-car prices
B. Median family income

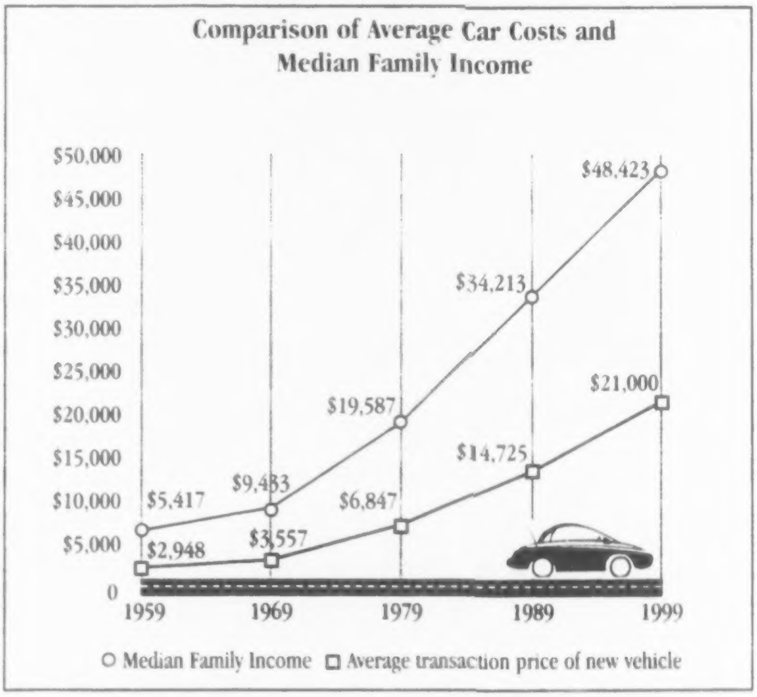


Table Practice Problems

Practice Problem 4.14

You work in the Human Resources Department. You are in charge of explaining the benefits options to employees in your company as outlined in the table on the following page. A new employee asks you questions about the cost of term life insurance that he wants to purchase for his wife. His wife is 55 and does not smoke. How much will he pay in a monthly premium to purchase a $180,000 life insurance policy?

A. $20
B. $30
C. $40
D. $50
E. $60

Are the rates per $1000 of life insurance coverage higher or lower for non-smoking males than they are for non-smoking females?

A. The rates are higher for males.
B. The rates are higher for females.
C. There are no differences in rates for males and females.

Are rates per $1000 of life insurance coverage higher or lower for males than they are for females?

A. The rates are higher for males.
B. The rates are higher for females.
C. There are no differences in rates for males and females.

Term Life Insurance						
Monthly Premium	$20	$30	$40	$20	$30	$40
Males						
AGE	**Non-Tobacco Users**			**Tobacco Users**		
25	$380,000	$610,000	$860,000	$300,000	$390,000	$550,000
35	370,000	600,000	850,000	280,000	360,000	510,000
45	175,00	290,000	400,000	210,000	120,000	350,000
55	55,000	92,000	130,000	110,000	45,000	110,000
65			50,000			30,000
Females						
AGE	**Non-Tobacco Users**			**Tobacco Users**		
25	$470,000	$550,000	$990,000	$450,000	$450,000	$650,000
35	465,000	500,000	950,000	350,000	400,000	610,000
45	220,000	250,000	500,000	200,000	150,000	450,000
55	110,000	180,000	250,000	100,000	125,000	200,000
65			90,000			70,000

Practice Problem 4.15

You are investigating the purchase of a fax machine for your office. Review the following information about Brother fax machines and answer the following questions.

Which machine uses Item #PCI-2D95 to make it compatible with Windows 98?

A. Intelli FAX 3750
B. MFC 4650
C. MFC 6650 MC
D. MFC 7750

Are these laser or ink jet machines?

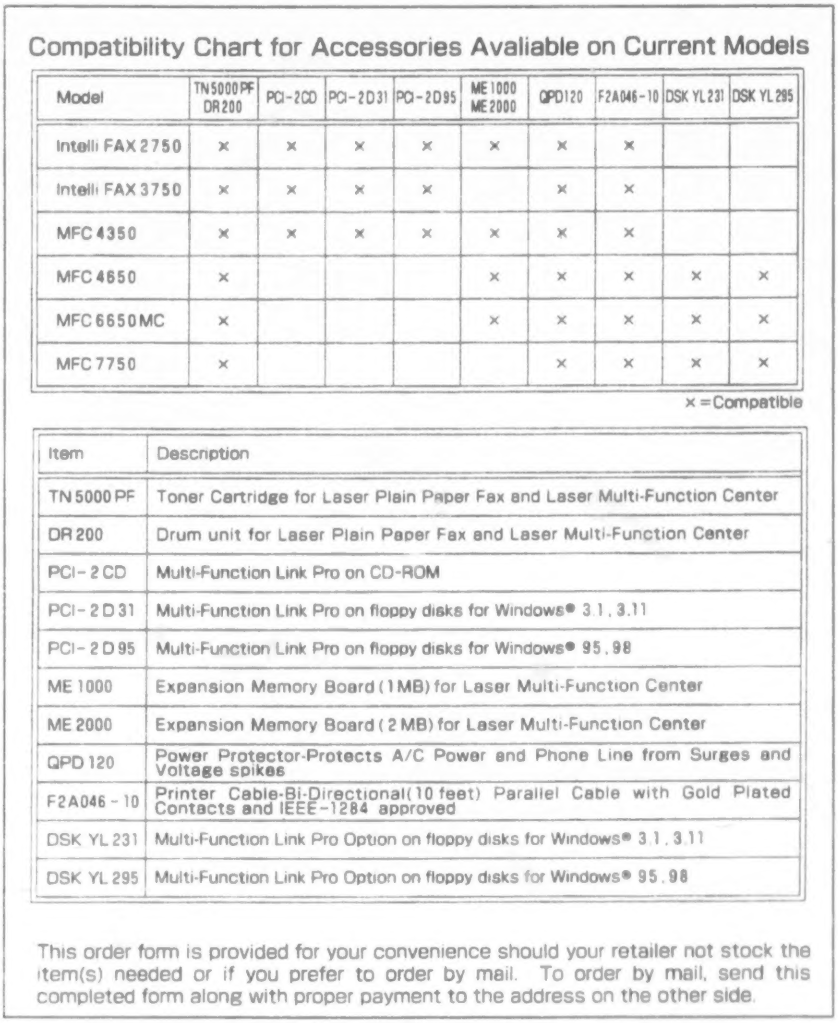
A. They are laser machines.
B. They are ink jet machines.

A bi-directional cable is needed for each of these fax machines. What is the cost of a bi-directional cable, if purchased from Brother?

A. $ 5.00
B. $14.99
C. $24.99
D. $29.99
E. $99.99

You live in the United States. If you order the bi-directional cable, what standard shipping charge will you pay?

A. $ 5.00
B. $8.75
C. $15.75
D. $18.75
E. $14.99



Compatibility Chart for Accessories Avaliable on Current Models

Model	TN5000PF DR200	PCI-2CD	PCI-2D31	PCI-2D95	ME1000 ME2000	QPD120	F2A046-10	DSK YL231	DSK YL295
Intelli FAX 2750	×	×	×	×	×	×	×		
Intelli FAX 3750	×	×	×	×		×	×		
MFC 4350	×	×	×	×	×	×	×		
MFC 4650	×				×	×	×	×	×
MFC 6650MC	×				×	×	×	×	×
MFC 7750	×					×	×	×	×

× = Compatible

Item	Description
TN 5000 PF	Toner Cartridge for Laser Plain Paper Fax and Laser Multi-Function Center
DR 200	Drum unit for Laser Plain Paper Fax and Laser Multi-Function Center
PCI-2 CD	Multi-Function Link Pro on CD-ROM
PCI-2 D 31	Multi-Function Link Pro on floppy disks for Windows® 3.1, 3.11
PCI-2 D 95	Multi-Function Link Pro on floppy disks for Windows® 95, 98
ME 1000	Expansion Memory Board (1 MB) for Laser Multi-Function Center
ME 2000	Expansion Memory Board (2 MB) for Laser Multi-Function Center
QPD 120	Power Protector-Protects A/C Power and Phone Line from Surges and Voltage spikes
F2A046-10	Printer Cable-Bi-Directional(10 feet) Parallel Cable with Gold Plated Contacts and IEEE-1284 approved
DSK YL 231	Multi-Function Link Pro Option on floppy disks for Windows® 3.1, 3.11
DSK YL 295	Multi-Function Link Pro Option on floppy disks for Windows® 95, 98

This order form is provided for your convenience should your retailer not stock the item(s) needed or if you prefer to order by mail. To order by mail, send this completed form along with proper payment to the address on the other side.

Accessory Order Form

Item	Retail Price	Quantity	Total
TN 5000 PF	$ 33.99		
DR 200	$ 192.99		
PCI-2CD	$ 99.99		
PCI-2D31	$ 99.99		
PCI-2D95	$ 99.99		

Item	Retail Price	Quantity	Total
ME 1000	$ 199.99		
ME 2000	$ 299.99		
QPD 120	$ 29.99		
F2A046-10	$ 24.99		
DSK YL231	$ 14.99		
DSK YL295	$ 14.99		

Model	Item	Retail Price	Quantity
Intelli FAX 2750 Intelli FAX 3750	Owner's Manual	$ 5.00	
MFC 4350 MFC 4650 MFC 7750 MFC 6650 MC	Owner's Manual	$ 5.00	

To complete the Order Form:

1. Review the reverse side of this form and select the desired items.
2. Complete the above form, indicating the quantity of each item.
3. Total the columns and enter the total on the "Supply/Accessory Subtotal" line.
4. Add the appropriate Sales Tax and Shipping/Handling Charge.
5. Clearly print your name and address on the Shipping Label below.
6. Send this Order Form, along with proper payment to the address below.

OR

Credit Card holders, call toll free, anytime, 1-888-879-3232, or fax your completed Order Form to 800-947-1445.

Name: ______________________

Address: ______________________

City: ______________________

State: __________ Zip: __________

Daytime Phone #: ( ) ______________________

Daytime Fax #: ( ) ______________________

Your Model Number: ______________________

SEND ORDER FORM TO:
Brother International Corp.
Attn:Consumer Accessory Div.
P.O.Box 341332
Bartlett, TN38184-1332

Prices subject to change without notice.
All prices quoted in US Dollars.

Supply/Accessory Subtotal: $ ________

AZ,CA,CO,CT,FL,GA,IL,LA,MA,MD,MI,MN,
MO,NC,NJ,NV,NY,OH,PA,TN,TX,VA,WA
residents add applicable sales tax: $ ________

Shipping and Handling Options
Please choose one: $ ________

- Standard Freight:
  - Continental U.S. ($5.00)
  - Alaska and Hawaii ($8.75)
  - Canada, GU, PR, VI ($15.75)
- 2nd Day Air Freight (Continental U.S. only): ($8.75)
- For all other overseas orders, fax this form to us at 1-901-384-8184 for a quote based on weight.

TOTAL DUE $ ________

No C.O.D. orders

Method of Payment (check one)
( )Visa ( )MasterCard ( )Discover
( )Check /Money Order ( )American Express

Account Number ______________________

Expiration Date ______________________

Signature ______________________

UU725300: 7

Practice Problem 4.16

You are responsible for doing soldering in your machine shop. For one job, you need to solder pewter. What flux should you use?

A. Cut acid
B. Rosin
C. Tallow
D. Sal ammoniac
E. Ammonium chloride

What temperature should you use to do this soldering job?

A. 500° F
B. 1,100° F
C. 1,400° F
D. 1,900° F
E. 2,400° F

Fluxes for Soft Soldering		
Materials to be Soldered	**Flux**	**Chemical Name of Flux**
Brass Copper	Cut acid Rosin Sal ammoniac[1]	Zinc chloride Colophony Ammonium chloride
Zinc Galvanized iron	Cut acid Cut acid	Zinc chloride Zinc chloride
Iron Steel	Cut acid Sal ammoniac	Zinc chloride Ammonium chloride
Tin Tin Plate	Rosin Cut acid	Colophony Zinc chloride
Pewter	Tallow	Tallow
Nickel Silver	Cut acid	Zinc chloride
Aluminum	Specialty fluxes by different manufacturers	

[1] Sal ammoniac is ammonium chloride. It is a white solid substance that looks like rock salt or rock candy; it is used as a soldering flux. It changes from a solid to a gas immediately upon heating.

Temperatures for Soft Soldering with Different Fluxes	
Flux	**Temperature (°F)**
Cut acid	1,100
Rosin Tallow	1,400
Sal ammoniac	900

Practice Problem 4.17

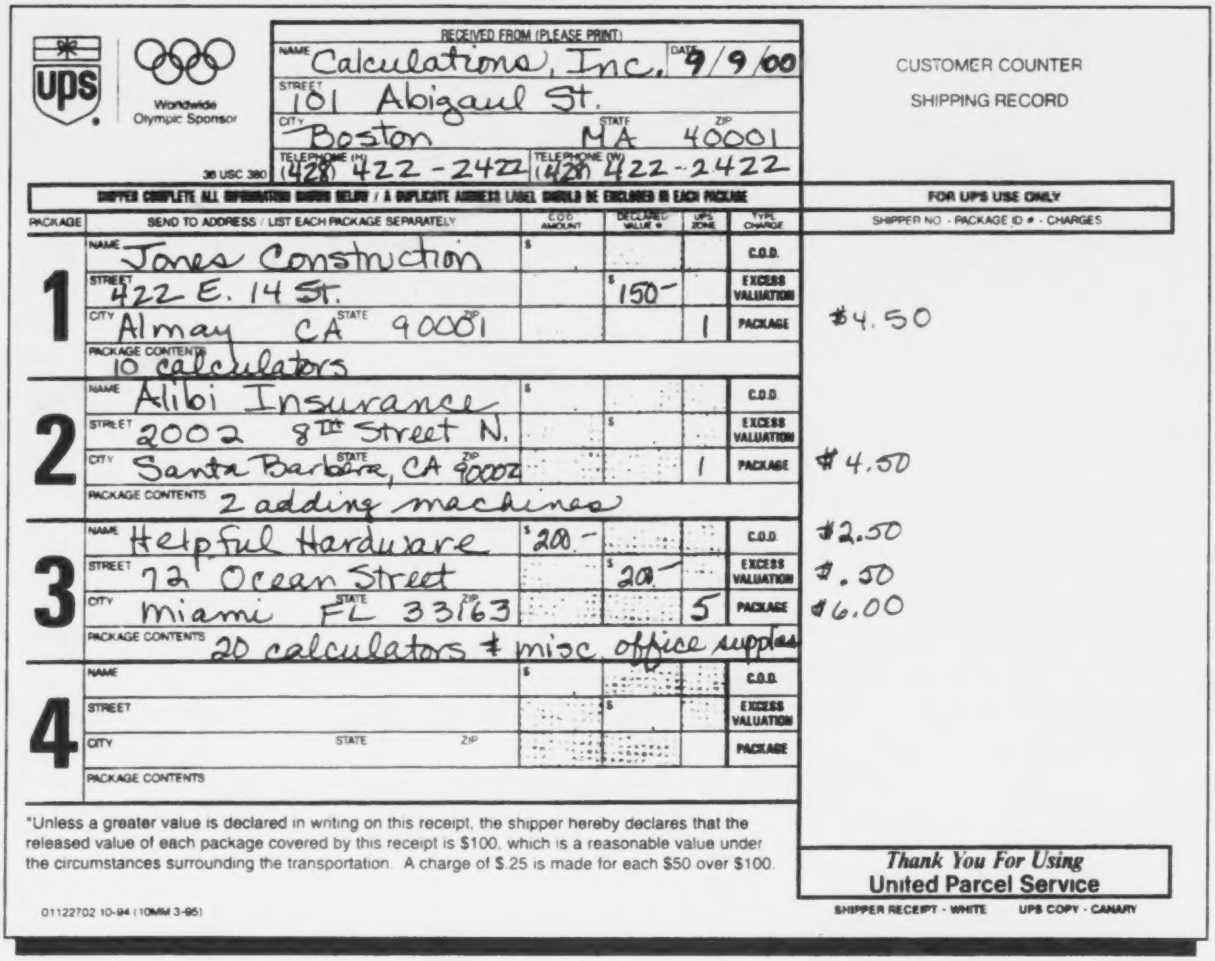
As the mail room supervisor, you are responsible for checking the work of the people who work in your department. One of your assistants completed the following form, which is needed to send several packages by United Parcel Service (UPS). Package #1 contains 10 calculators at a value of $150. Package #2 contains 2 adding machines at a value of $55. Package #3, which is being sent with cash due on delivery (C.O.D.), contains 20 solar calculators and miscellaneous office supplies valued at $200. Review the shipping form for accuracy.

Which statement about Package #1 is correct?

A. The information for Package #1 is correct.
B. The information for Package #1 is incorrect. It should include an additional insurance charge.
C. The information for Package #1 is incorrect. Some needed information is missing.
D. The information for Package #1 is incorrect. The calculator value is $300 too low.

Which statement about Package #3 is correct?

A. The information for Package #3 is correct.
B. The information for Package #3 is incorrect. It should include an additional insurance charge.
C. The information for Package #3 is incorrect. It should include a different C.O.D. amount.
D. The information for Package #3 is incorrect. Some needed information is missing.



Worldwide Olympic Sponsor

36 USC 380

RECEIVED FROM (PLEASE PRINT)

NAME Calculations, Inc. DATE 9/9/00
STREET 101 Abigaul St.
CITY Boston STATE MA ZIP 40001
TELEPHONE (H) (428) 422-2422 TELEPHONE (W) (428) 422-2422

CUSTOMER COUNTER SHIPPING RECORD

SHIPPER COMPLETE ALL INFORMATION SHOWN BELOW / A DUPLICATE ADDRESS LABEL SHOULD BE ENCLOSED IN EACH PACKAGE

FOR UPS USE ONLY

PACKAGE	SEND TO ADDRESS / LIST EACH PACKAGE SEPARATELY	C.O.D. AMOUNT	DECLARED VALUE *	UPS ZONE	TYPE CHARGE	SHIPPER NO - PACKAGE ID # - CHARGES
1	NAME Jones Construction	$			C.O.D.	
	STREET 422 E. 14 St.		$150-		EXCESS VALUATION	
	CITY Almay STATE CA ZIP 90001			1	PACKAGE	$4.50
	PACKAGE CONTENTS 10 calculators					
2	NAME Alibi Insurance	$			C.O.D.	
	STREET 2002 8th Street N.		$		EXCESS VALUATION	
	CITY Santa Barbara, STATE CA ZIP 90002			1	PACKAGE	$4.50
	PACKAGE CONTENTS 2 adding machines					
3	NAME Helpful Hardware	$200-			C.O.D.	$2.50
	STREET 72 Ocean Street		$200-		EXCESS VALUATION	$.50
	CITY Miami STATE FL ZIP 33163			5	PACKAGE	$6.00
	PACKAGE CONTENTS 20 calculators & misc. office supplies					
4	NAME	$			C.O.D.	
	STREET		$		EXCESS VALUATION	
	CITY STATE ZIP				PACKAGE	
	PACKAGE CONTENTS					

*Unless a greater value is declared in writing on this receipt, the shipper hereby declares that the released value of each package covered by this receipt is $100, which is a reasonable value under the circumstances surrounding the transportation. A charge of $.25 is made for each $50 over $100.

Thank You For Using
United Parcel Service

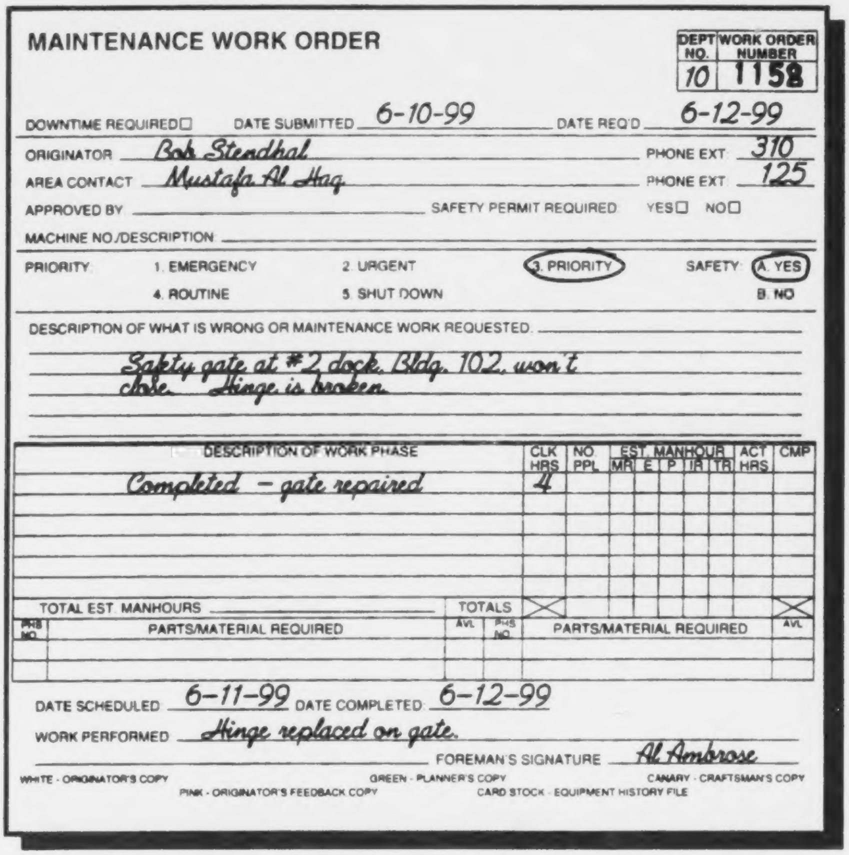
01122702 10-94 (10MM 3-95)

SHIPPER RECEIPT - WHITE UPS COPY - CANARY

Practice Problem 4.18

You are responsible for charging work done by your company's maintenance technicians to the department that requests the work. The average amount of time needed for a maintenance call is six hours over three days. Was the work reported on Work Order #1158 longer, shorter, or the same as the average maintenance call time?

A. Longer than average
B. Shorter than average
C. About the same as average



MAINTENANCE WORK ORDER

DEPT NO.	WORK ORDER NUMBER
10	1158

DOWNTIME REQUIRED ☐ DATE SUBMITTED 6-10-99 DATE REQ'D 6-12-99
ORIGINATOR Bob Stendhal PHONE EXT 310
AREA CONTACT Mustafa Al Haq PHONE EXT 125
APPROVED BY SAFETY PERMIT REQUIRED YES ☐ NO ☐
MACHINE NO./DESCRIPTION
PRIORITY: 1. EMERGENCY 2. URGENT [✓ 3. PRIORITY] 4. ROUTINE 5. SHUT DOWN
SAFETY: [✓ A. YES] B. NO

DESCRIPTION OF WHAT IS WRONG OR MAINTENANCE WORK REQUESTED:
Safety gate at #2 dock, Bldg. 102, won't close. Hinge is broken.

DESCRIPTION OF WORK PHASE	CLK HRS	NO. PPL	EST. MANHOUR MR	E	P	IR	TR	ACT HRS	CMP
Completed – gate repaired	4								
TOTAL EST. MANHOURS ____ TOTALS									

PHS NO.	PARTS/MATERIAL REQUIRED	AVL	PHS NO.	PARTS/MATERIAL REQUIRED	AVL

DATE SCHEDULED 6-11-99 DATE COMPLETED 6-12-99
WORK PERFORMED Hinge replaced on gate.
FOREMAN'S SIGNATURE Al Ambrose

WHITE - ORIGINATOR'S COPY GREEN - PLANNER'S COPY CANARY - CRAFTSMAN'S COPY
PINK - ORIGINATOR'S FEEDBACK COPY CARD STOCK - EQUIPMENT HISTORY FILE

BEST COPY AVAILABLE

Answers to Improving to Level 4 Practice Problems

4.1	E.	6:00 a.m.
	A.	1:00 a.m.
4.2	B.	I-71
	C.	I-75
4.3	B.	The exit near Training Room D
	C.	5 training rooms (they are lettered A–D)
4.4	E.	140 miles
	B.	2 hours 30 minutes
4.5	D.	$328
	E.	$500
4.6	B.	Blunt
4.7	C.	Purchasing Agent
	B.	There are more managers.
	B.	No, each manager does not have an assistant.
4.8	B.	The battery should be replaced.
	B.	It needs to have at least 60% power.
	C.	75 volts
4.9	A.	3%
	B.	Child health and education/early childhood development
	B.	CORE
4.10	B.	Five-year CDs
	B.	Last year
	C.	4.90%
4.11	A.	Increased
	E.	National, 160 million dollars
4.12	A.	Better
	A.	Yes, your mutual fund has consistently grown at a faster rate than the Russell 2000.
4.13	B.	Median family income
4.14	B.	$30
	A.	The rates are higher for males.
	A.	The rates are higher for males.

4.15 A. Intelli FAX 3750

A. They are laser machines.

C. $24.99

A. $5.00

4.16 C. Tallow

C. 1,400° F

4.17 B. The information on Package #1 should include an additional insurance charge.

A. The information on Package #3 is correct.

4.18 B. Shorter than average

Insert the

“Improving to Level 5”

Divider Here

INDEX

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Level 5 Locating Information Skills 96

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Practice Problems for Improving to Level 5 103

Answers to Improving to Level 5 Practice Problems 126

Characteristics of Level 5 Graphics

- Level 5 graphics are **complex**; they are longer and contain more detail than Level 4 graphics.
- Some of the **detail** may be easily confused with other information in the same graphic.
- Even short graphics may appear in a **format** that is complicated and hard to interpret.
- The **language** and **symbols** used in Level 5 graphics may not be familiar to the majority of the learners because of their technical nature.
- Decimals and fractional **values** are commonly used at this level, and both positive and negative values may be included.
- **Unusual perspectives**, such as side elevations, may be used.

Level 5 Locating Information Skills

The Level 5 Locating Information skills include all skills needed at previous levels, plus the following:

- ***Summarize*** **and/or** ***compare*** **information and trends** in one complex graphic.
- ***Summarize*** **and/or** ***compare*** **information and trends** presented in more than one complex workplace graphic (e.g., a bar chart and a table showing related information).
- ***Sort*** **through distracting information**.

The learning activities and practice problems in this section will help learners develop and practice Level 5 Locating Information skills.

> Important! The graphics used in Level 5 and Level 6 problems can be the same. However, instructors should ask different types of questions when helping learners improve to Level 5. These questions should require learners to **summarize and/or compare information and trends and sort through distracting information**.

Learning Activities for Improving to Level 5

Introduction

At Level 5, learners should be able to summarize and compare trends and main points in one complex graphic or use more than one complex graphic to complete a task. The following learning activities will help them develop and practice Level 5 skills. The activities can be done individually or in pairs. In some cases, it may be appropriate to ask learners to work in teams of 3–4.

In addition to the activities described below, instructors are encouraged to *adapt* some of the Level 4 learning activities (pp. 67–71) that require the skills of summarizing or comparing trends and main points. This can be done by increasing the *complexity* of the graphics used.

Learning Activities

The following learning activities are recommended for helping learners Improve to Level 5 of Locating Information:

- Give learners practice in using the following **types of graphics**, which are common at Level 5. Give learners a variety of opportunities to read and interpret them:
    - Multiple bar graphs
    - Line graphs plotting several categories of data
    - Pie charts with many sections
    - Diagrams with less familiar forms, more details, and unusual perspectives
    - Charts and tables with considerable detail and technical information
    - Multiple graphics that contain information that is related to completing one task
- **Locate complex graphics** that can be used in instruction. Many business and government publications include complex graphics, as do some Internet sites. Some good resources for Level 5 graphics include:
    - The Census Bureau and the Departments of Labor, Education, Health and Human Services publish reports and documents that contain Level 5 (and Level 6) graphics.
    - Maps generated by the government (e.g., city zoning maps) contain detailed information that is unfamiliar to many learners.

  - Insurance and investment businesses publish materials that are full of detailed tables, charts, and graphs.
  - Stock market information includes tables, charts, and graphs.
  - Car and appliance repair manuals contain detailed diagrams and technical tables.

- Because of the complexity of Level 5 graphics, learners will need to **read and interpret them carefully**. Instructors should guide learners to:
  - **Read carefully** to understand the meaning of the graphic.
  - Look for **common links** between the question being asked and the graphic(s).
  - **Focus** on the part of the graphic that contains the information needed to answer the question.

- Help learners develop skills in **identifying which information in a graphic is relevant** to the task at hand and which is not. It is critical that learners are able to sort through extraneous information when using Level 5 graphics. They need to identify essential data, then analyze and synthesize that data—disregarding the unneeded data. For example:
  - Show learners a company's organizational chart and ask them to identify things like (1) the number of level-2 laborers (2) who reports to whom and (3) employees who are at a similar level or have similar job titles.
  - Have learners scan city or state maps for information needed to solve a given problem. Note: Teams of learners can identify coordinates for other teams to find.
  - Have learners use a city or state map marked with a grid system to identify a city or street at given coordinates. Note: Teams of learners can identify coordinates for other teams to find.

- Give learners opportunities to **use multiple criteria to arrive at a conclusion**. For example:
  - Show learners a chart for recommended automobile service. Giving them specific driving conditions, have learners identify the manufacturer's recommended frequency for changing the oil. Note: Conditions for more frequent oil changes usually include frequent short trips, dusty roads, *or* living in a hot climate.

  - Ask learners to make a recommendation for buying a piece of equipment that meets specific criteria. A drill, for instance, should have a large enough motor to withstand a specified amount of resistance and must hold a specific size of drill bits. It must also be priced within the company's budget constraints. The learner would need to use related graphics to determine if each of these criteria is met, and then must recommend which drill should be purchased. Note: Teams can develop scenarios for other teams to solve.

- Help learners understand **direction-related instructions** including: *estimate, evaluate, recommend, suggest,* and *decide.* These are needed when performing Level 5 tasks. For example:

  - Ask learners to *estimate* a value related to data displayed on a line graph.

  - Ask learners to *evaluate* the information contained in a graphic and make a *recommendation* about its accuracy.

- Give learners opportunities to **carefully check the data in one chart, graph, or table against the data in another**. For example, use one table in a car parts manual to determine which parts are needed for a specified repair and use a different table to identify each part's cost.

- Have learners **flowchart specific procedures** (e.g., food preparation, safety or sanitation procedures). Try to include those used in the workplace. Once completed, have other learners write out the procedure, using the flowchart.

- Have learners **summarize** the information contained in complex graphics. Use the Ford Mustang Sales chart below as an example.

  To summarize efficiently, learners need to **sort** through the information contained in graphics. For example, in the chart below, instructors could ask learners to identify which car had the highest sales in the current year. To do this, they need to eliminate the extraneous information (the *catalog number, item, retail cost,* and *change in sales* columns). They should then identify the highest number in the *annual sales* column.

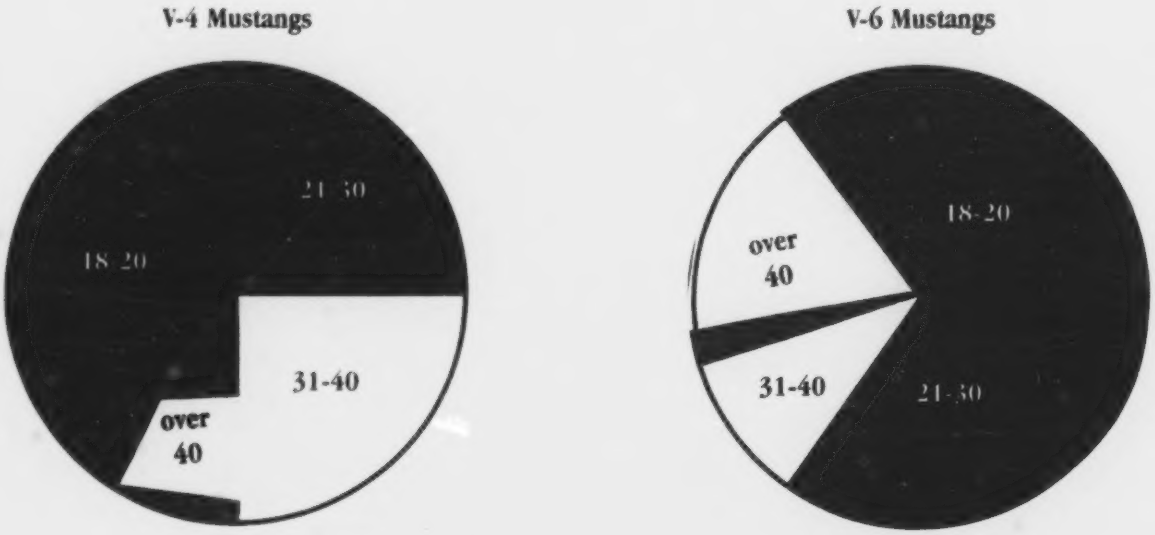
Ford Mustang Sales
Billy's Car Lot

Catalog Number	Item	Retail Cost (Base Model)	Annual Sales (Current Year)	Change in Sales from Previous to Current Year
r234	Red V-4	$18,999	144	+11
t334	Teal V-4	$18,999	106	+9
r546	Red V-6	$22,499	95	– 20
t646	Teal V-6	$22,499	88	–5

- Have learners **compare trends** on one complex document. For example, using the Ford Mustang Sales chart, ask learners to determine which car had the greatest increase in sales. (To do this, learners need to eliminate all negative numbers in the *change* column and then choose the largest number.)

- Have learners **summarize information** or **compare trends** using more than one graphic. For example, have them examine two charts related to Ford Mustang sales.

Age of Mustang Buyers



Learners could be asked to examine the two pie charts to determine if more V-4 or V-6 Mustangs were sold to customers of different age groups.

- Have learners **use more than one complex graphic** to complete a task. For example:
    - Give learners a postal rate zone map and a postal rate chart. Have them determine the cost of sending a package from one zone to another, including insurance. Note: Teams of learners can write shipping scenarios for other teams to follow.)
    - Have learners determine the price of a new car, including costs for sales tax and car insurance. Ask them to calculate the total cost per year, the monthly cost, or both.

- Have learners use complex graphics to **do specific tasks**. This will require them to *choose the needed information* from a variety of graphics and to *use multiple criteria.*

  Examples:

  - Ask learner teams to use a flower or nursery catalog (e.g., Spring Hill Nurseries) to select plants that will grow in a specified region and fit within a specified budget.

  - Give learner teams hazardous material (hazmat) regulations and information about the categories (i.e., health, reactive, fire, special), icons (symbols), and rating levels for materials used in the workplace. Have them:

    - ✓ Use the appropriate icon to *identify* each category of hazard. (This requires the skill of finding information.)

    - ✓ Review a list of ratings to *summarize* and *draw conclusions.*

  - Ask teams of learners to use complex graphics to develop a plan for hosting someone visiting one of their workplaces for a one- or two-day meeting. (If they are not currently working, have them imagine they work for an existing business or create a fictitious one.)

    Either instructors or learners can provide the needed airplane schedules, car rental schedules, and maps. Hint: There are some travel-related Internet sites (e.g., Travel.com) that provide all needed information for any designated city or region. Also, most telephone books contain maps and other helpful information.

    Teams should do some or all of the following:

    - ✓ Use airplane schedules to determine the best arrival and departure times, airlines, and flight numbers. The travel itinerary should take specified criteria into account (e.g, must depart after 9 a.m. or must arrive no later than 2 p.m., must use Delta or United Airlines, must cost under $350).

    - ✓ Determine car rental information, including locations and rates. Criteria could include cost constraints and car size requirements.

    - ✓ Use city maps to determine the best routes to take from the airport to the hotel and business locations. Criteria could include identifying specific roads that are gridlocked during rush hour.

- ✓ Select a hotel that is near the business. Specify criteria such as proximity to the business, cost, and features such as availability of a gym or in-room computer hook-up.

- Have teams **develop complex graphics** for other teams to interpret.
- Give learners a Level 5 graphic that is interpreted incorrectly, and have them **find mistakes** and **make corrections**.
- Have learners write a paragraph to **explain the process** they used to interpret a graphic.

Practice Problems for Improving to Level 5

The following practice problems will help learners improve to Locating Information Level 5. These problems resemble those on the Work Keys Locating Information Assessment.

Each problem requires learners to summarize or compare trends and main points in one complex graphic or to use more than one complex graphic to complete a task. Instructors are encouraged to develop additional practice problems for classroom use that use Level 5 graphics.

Answers to these practice problems are on pp. 126–127.

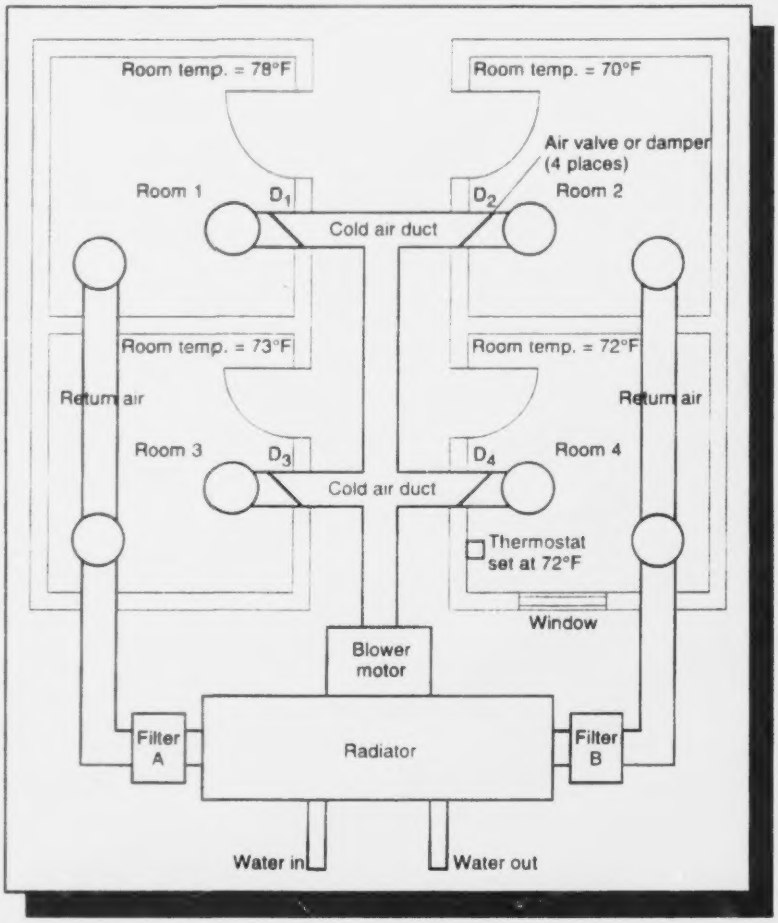
Practice Problem 5.1

The following is a heating diagram for an office building. Which is the hottest room?

A. Room 1
B. Room 2
C. Room 3
D. Room 4
E. All rooms are the same temperature.

How many filters does the heating system use?

A. 1 filter
B. 2 filters
C. 3 filters
D. 4 filters
E. 5 filters



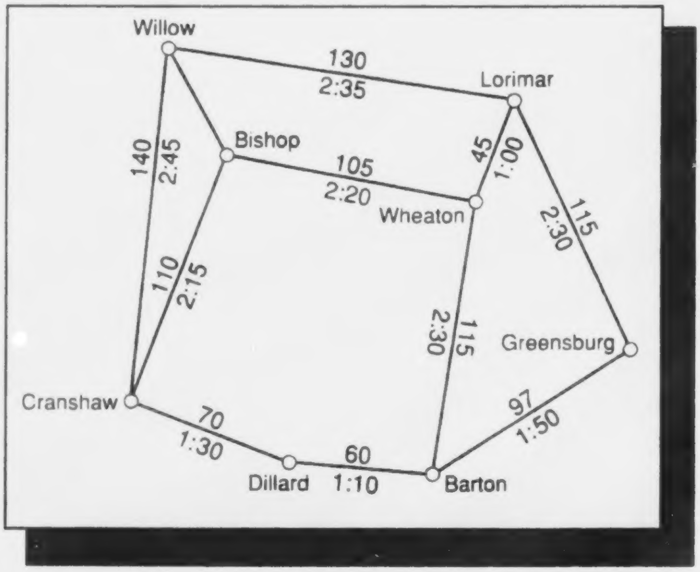
Room temp. = 78°F
Room temp. = 70°F
Air valve or damper (4 places)
Room 1
D_1
D_2
Room 2
Cold air duct
Room temp. = 73°F
Room temp. = 72°F
Return air
Return air
Room 3
D_3
D_4
Room 4
Cold air duct
Thermostat set at 72°F
Window
Blower motor
Filter A
Radiator
Filter B
Water in
Water out

Practice Problem 5.2

The following diagram shows a region where you will need to drive. It includes the distance in miles and the driving times between towns.

What is the distance from Lorimar to Barton when driving through Wheaton?
- A. 45 miles
- B. 115 miles
- C. 330 miles
- D. 145 miles
- E. 160 miles

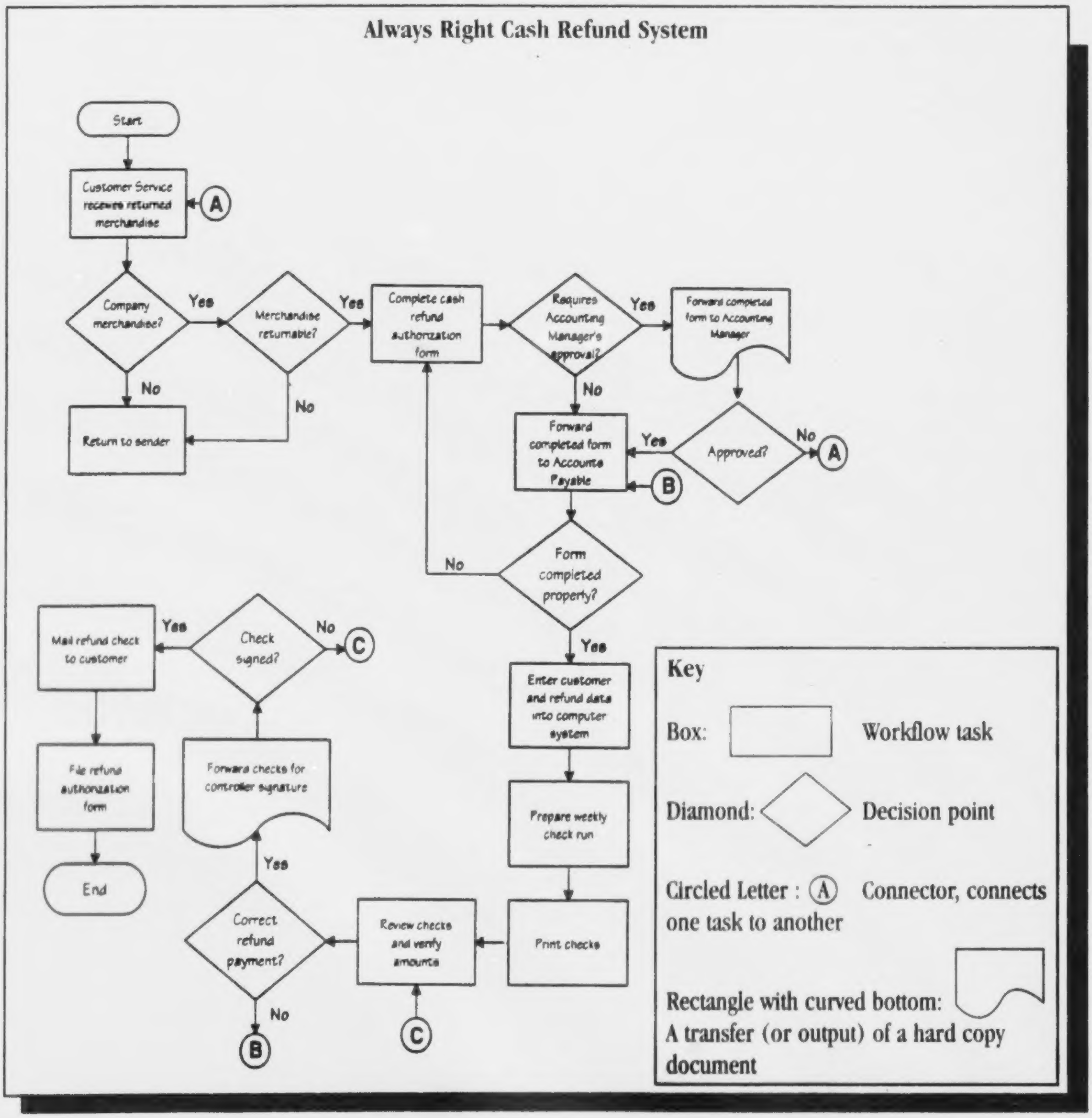
What is the fastest route between Lorimar and Cranshaw?
- A. Through Bishop
- B. Through Willow
- C. There is no route from Lorimar to Cranshaw.
- D. Through Wheaton
- E. Through Barton


Willow
130
2:35
Lorimar
140
2:45
Bishop
105
2:20
45
1:00
Wheaton
115
2:30
110
2:15
2:30
115
Greensburg
Cranshaw
70
1:30
97
1:50
60
Dillard
1:10
Barton

Practice Problem 5.3

You have just been hired as a customer service representative for the Always Right Company. According to the flowchart below, what should you do when your return department receives merchandise that was sold by Always Right and is returnable?

A. Return it to the sender.
B. Complete a cash refund authorization form.
C. Enter customer and refund data into the computer system.
D. Print a check.
E. Mail a refund check to the customer.

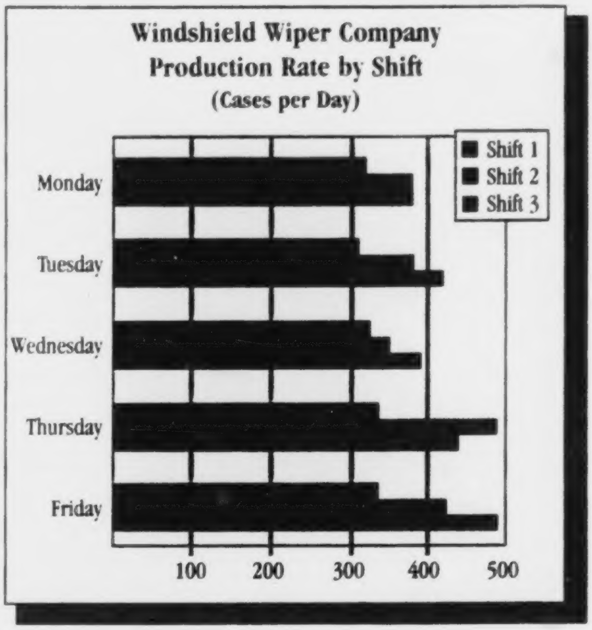

Always Right Cash Refund System

Start
Customer Service receives returned merchandise
A
Company merchandise?
Yes
No
Return to sender
Merchandise returnable?
Yes
No
Complete cash refund authorization form
Requires Accounting Manager's approval?
Yes
No
Forward completed form to Accounting Manager
Approved?
Yes
No
A
Forward completed form to Accounts Payable
B
Form completed properly?
No
Yes
Enter customer and refund data into computer system
Prepare weekly check run
Print checks
Review checks and verify amounts
C
Correct refund payment?
No
B
Yes
Forward checks for controller signature
Check signed?
No
C
Yes
Mail refund check to customer
File refund authorization form
End
Key
Box:
Workflow task
Diamond:
Decision point
Circled Letter : A
Connector, connects one task to another
Rectangle with curved bottom:
A transfer (or output) of a hard copy document

Practice Problem 5.4

You are production manager for a company that manufactures windshield wiper frames for new cars. The bar graph below shows the production rates of each shift's work last week. Which shift was the least productive last week?

A. Shift 1
B. Shift 2
C. Shift 3
D. Both Shifts 1 and 2
E. Both Shifts 1 and 3



Which was the most productive day last week?

A. Monday
B. Tuesday
C. Wednesday
D. Thursday
E. Friday

Practice Problem 5.5

You are a technician responsible for maintaining the vehicles in the motor pool. One light duty truck was brought in with emissions-control system difficulties. You need to check the vacuum control valve. You open the maintenance manual for instructions which include the flowchart on the following page.

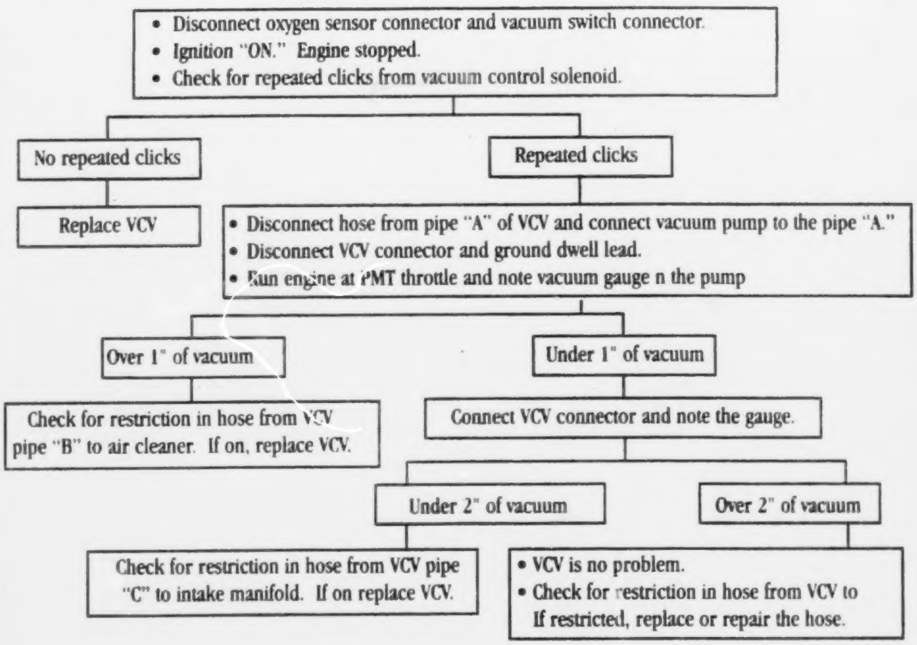
When checking for problems with the truck's vacuum control valve, you first find that the vacuum control solenoid clicks repeatedly. What should you do next?

A. Replace the VCV.
B. Disconnect the hose from Pipe A and connect it to the vacuum pump.
C. Connect the VCV connector and note the gauge.
D. Check for a restriction in the hose from Pipe C to the intake manifold.
E. Check for a restriction in the hose from VCV Pipe B to the air cleaner.

If you determine that there is over one inch of vacuum, what should you do next?

A. Replace the VCV.
B. Disconnect the hose from Pipe A of the VCV.
C. Connect the VCV connector and note the gauge.
D. Check for a restriction in the hose from Pipe C to the intake manifold.
E. Check for a restriction in the hose from VCV Pipe B to the air cleaner.

Vacuum Control Valve Check



- Disconnect oxygen sensor connector and vacuum switch connector.
- Ignition "ON." Engine stopped.
- Check for repeated clicks from vacuum control solenoid.

No repeated clicks

Replace VCV

Repeated clicks

- Disconnect hose from pipe "A" of VCV and connect vacuum pump to the pipe "A."
- Disconnect VCV connector and ground dwell lead.
- Run engine at PMT throttle and note vacuum gauge n the pump

Over 1" of vacuum

Check for restriction in hose from VCV pipe "B" to air cleaner. If on, replace VCV.

Under 1" of vacuum

Connect VCV connector and note the gauge.

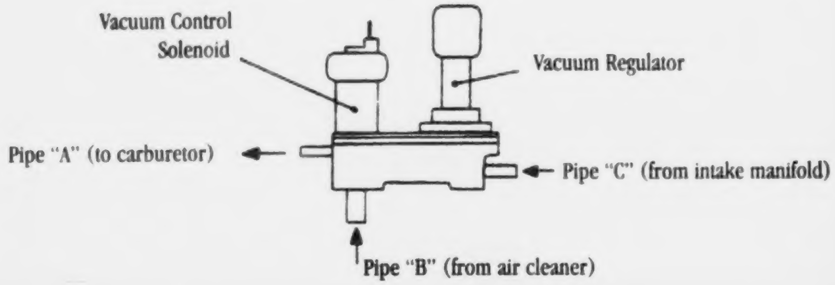
Under 2" of vacuum

Check for restriction in hose from VCV pipe "C" to intake manifold. If on replace VCV.

Over 2" of vacuum

- VCV is no problem.
- Check for restriction in hose from VCV to If restricted, replace or repair the hose.

Vacuum Control Valve Asm.


Vacuum Control Solenoid
Vacuum Regulator
Pipe "A" (to carburetor)
Pipe "C" (from intake manifold)
Pipe "B" (from air cleaner)

Practice Problem 5.6

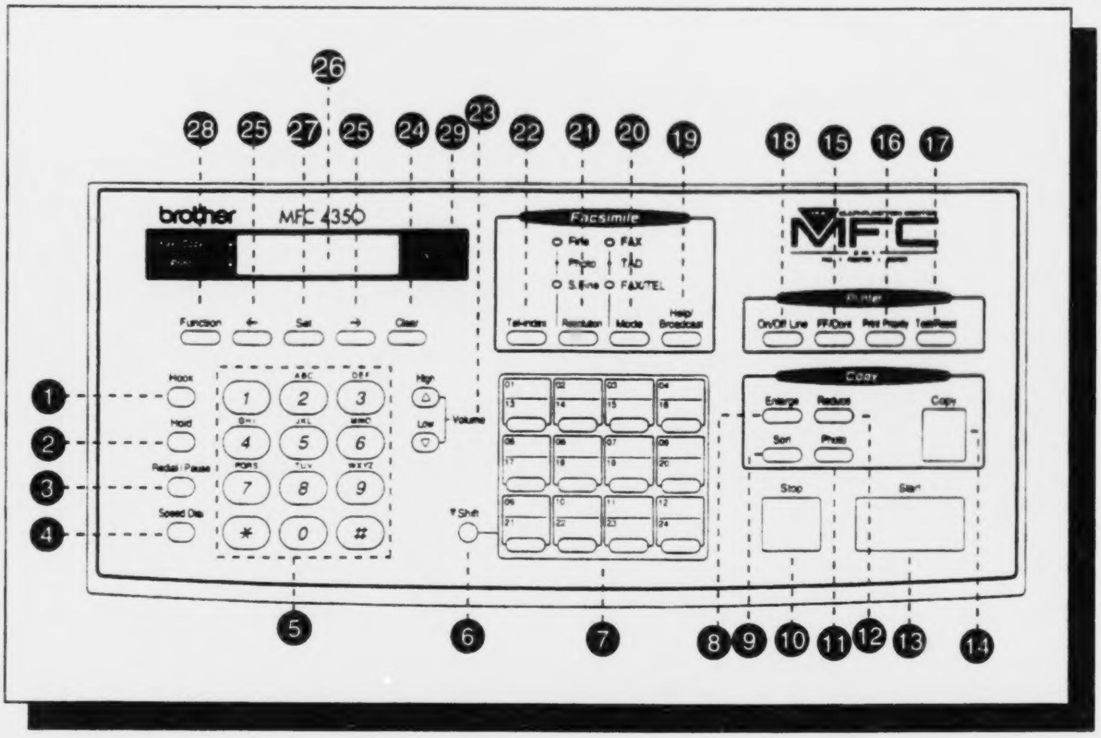
You just purchased a Brother Multi-Function Machine, Model 4350. You have been told to set up and use the machine.

What functions will this machine perform?

A. Fax
B. Fax and copy
C. Fax, copy, and print
D. Fax, copy, print, and scan
E. It will not perform any of these functions.

Which button would be used to begin sending a fax?

A. 3
B. 13
C. 14
D. 17
E. 27


26
28
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25
24
29
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22
21
20
19
18
15
16
17
brother
MFC 4350
Facsimile
Fine
Photo
S.Fine
FAX
TAD
FAX/TEL
MFC
Function
←
Set
→
Clear
Tel-index
Resolution
Mode
Help/
Broadcast
Printer
On/Off Line
FF/Cont
Print Priority
Test/Reset
Hook
Hold
Redial / Pause
Speed Dial
1
2
3
4
5
6
7
8
9
*
0
#
ABC
DEF
GHI
JKL
MNO
PQRS
TUV
WXYZ
High
Low
Volume
Shift
01
02
03
04
13
14
15
16
05
06
07
08
17
18
19
20
09
10
11
12
21
22
23
24
Copy
Enlarge
Reduce
Copy
Sort
Photo
Stop
Start
1
2
3
4
5
6
7
8
9
10
11
12
13
14

MFC 4350, MFC 4650 and MFC 7750 Control Panel Keys

① **Hook**
Lets you dial telephone and fax numbers without lifting the handset.

② **Hold**
Lets you put calls on hold.

③ **Redial/Pause**
Re-dials the last number called. Also inserts a pause in autodial numbers.

④ **Speed Dial**
Lets you dial stored phone numbers by pressing a two-digit number.

⑤ **Dial Pad**
Dials phone and fax numbers and can be used as a keyboard for entering information into the MFC.

⑥ **Shift**
This key is used to access the "13" through "24" One Touch numbers. In the printer mode when shift is pressed together with Test/Reset, it resets and restores the MFC to the factory default settings.

⑦ **One Touch Dial Keys**
These 12 keys give you instant access to previously stored phone numbers.

⑧ **Enlarge**
Enlarges copies depending on the ratio you select: 200%, 150%, 125%, 120%, and 100%.

⑨ **Sort**
Use this key when you want multiple copies of a multiple page original, copied in order.

⑩ **Stop**
Stops a fax, cancels an operation or exits from function mode.

⑪ **Photo**
This key is used to copy photographs.

⑫ **Reduce**
Reduces copies depending upon the ratio you select: 100%, 93%, 87%, 75%, and 50%. You can also use the Auto Reduction function to have the MFC automatically calculate the reduction ratio that fits the size of your paper.

⑬ **Start**
Starts sending a fax.

⑭ **Copy**
Makes a copy.

⑮ **FF/Cont**
When the LCD shows REMAINED DATA, you can turn the MFC OFFLINE and then press this key to print the data that is in the memory. Also, it clears operation and machine errors.

⑯ **Print Priority**
When this key is pressed, all faxes will be received into memory without first printing and can be printed later. This key also increases the memory available for printing, without decreasing memory available for memory transmissions and incoming messages.

⑰ **Test/Reset**
This key is used to print a test page. When it is pressed together with Shift, it clears the data from the printer memory, cancels an error status, and then resets and restores the MFC to the factory default settings.

⑱ **On/Off Line**
This key is used to turn the printer online (ready to receive PC data) and offline (not ready to receive PC data) alternately. When the printer is online, the LCD displays ONLINE.

⑲ **Help/Broadcast**
Prints a quick reference Help List. Also, you can use this key whenever you want to send faxes to many different locations (maximum of 174 locations) at once.

⑳ **Mode**
Select how the MFC will handle incoming calls.

㉑ **Resolution**
Sets the resolution when you send a fax.

㉒ **Tel-index**
Lets you look up numbers stored in the dialing memory.

㉓ **Volume High/Low**
Lets you adjust speaker, ring and handset volume.

㉔ **Clear**
Deletes entered data or backs up one step in function procedure.

㉕ **← (Left Arrow) → (Right Arrow)**
Moves the LCD cursor to the left or right.

㉖ **Liquid Crystal Display (LCD)**
Displays messages to help you set up and operate your MFC.

㉗ **Set**
Stores a function setting into the MFC.

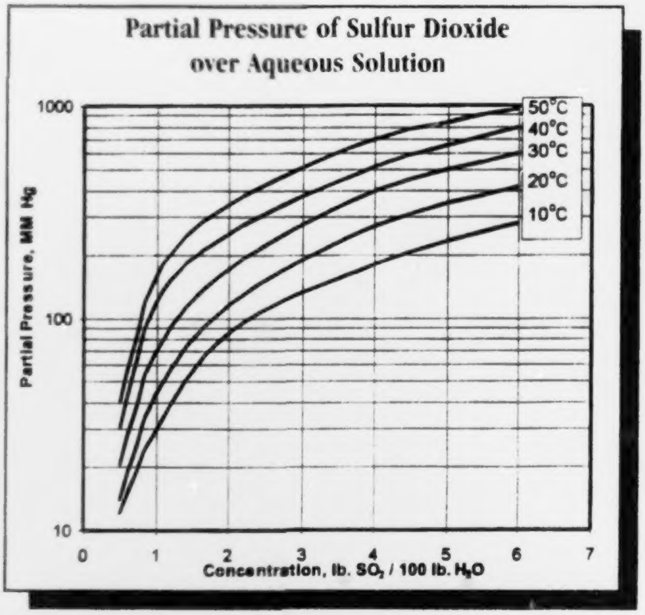
㉘ **Function**
Lets you access the function and programming mode.

㉙ **Toner Empty LED**
The Toner Indicator flashes on and off when toner is low, so you'll know to order another toner cartridge. You will be able to print until the indicator stays on.

Practice Problem 5.7

You are a chemist preparing a solution for a reaction. You make a solution by dissolving 4 pounds of sulfur dioxide in 100 pounds water, then heating it to 30°C. What is the partial pressure of sulfur dioxide over the solution specified?

A. 200 mm HG
B. 300 mm HG
C. 350 mm HG
D. 400 mm HG
E. 600 mm HG



Partial Pressure of Sulfur Dioxide over Aqueous Solution

Practice Problem 5.8

You work for East Side Shoes. Your company just started carrying shoes made by a European company called Finn Comfort. You are responsible for ordering shoes. You need to base this year's ladies sandal order on last year's sandal sales. Based on the number of ladies sandals sold last year in American sizes, how many sandals of each European size should you order?

A. 5 pair of size 37
B. 10 pair of size 37
C. 18 pair of size 39
D. 32 pair of size 39
E. 11 pair of size 41

East Side Shoes	
Sandal Sales	
Size	**Quantity**
4	5
5	10
6	18
7	27
8	32
9	11
10	6

SIZES	Finn Comfort Conversion Chart														
American	womens	4	5	6	7	8	9	10	11						
	mens				7	8	7	8	9	10	11	12	13	14	15
European		35	36	37	38	39	40	41	42	43	44	45	46	47	48
U.K.			2 1/2		3 1/2	5 1/2	6 1/2	7 1/2	8 1/2	9 1/2	10 1/2	11 1/2			

Your customer asks you to find her a pair of size 6 Finn Comfort sandals in navy blue nappa leather. Which sandal can she order?

A. 2510-100
B. 2509-100
C. 2509-2729
D. 2508-100
E. 2508-140

How much will the sandals cost the customer?

A. $83
B. $88
C. $166
D. $176
E. $190

Finn Comfort Sandals

CATALOGUE # & COLOR #	MODEL & COLOR	LEATHER	SIZES	WHOLESALE PRICE	SUGGESTED RETAIL
2508	**PALMA**				
-100	White	Nappa	35-42	$ 83	$166
-140	Navy-Blue	Nappa			
-799	Black	Nubuck			
2509	**SYLT**				
-100	White	Nappa	35-42	$ 88	$176
-720 S	Ginger	Nubuck			
-736 CORE	Cedar (Marone-Brown)	Nubuck			
-799 CORE	Black	Nubuck			
-782 S	Palm-Green	Nubuck			
-2729	Chestnut	Fine Grain	39-47	$ 88	$176
2510	**BALI**				
-100	White	Nappa	35-42	$ 88	$176
-799	Black	Nubuck			
-777 CORE new!	Toscana-Brown	Nubuck			
2511	**FLORIDA**				
-744/761/799	Cypress/Chilly/Black	Nubuck	35-42	$ 92	$184
2514	**CAPRI**				
-799	Black	Nubuck	35-42	$ 95	$190
2515	**MALAGA**				
-4699	Black	Oilbuck	35-42	$ 99	$198
2600	**MADEIRA**				
-720	Ginger	Nubuck	3-8 UK	$ 95	$190

S = Seasonal Item

BEST COPY AVAILABLE

Practice Problem 5.8

You drive a pickup truck. You bought it new, 3 years ago. According to the maintenance schedule, what service should be performed at this time?

A. Inspect valve clearance, inspect exhaust pipes, replace spark plugs
B. Adjust valve clearance, inspect exhaust pipes, inspect spark plugs
C. Adjust valve clearance, inspect exhaust pipes, change oil, inspect spark plugs
D. Adjust valve clearance, inspect exhaust pipes, change oil, replace spark plugs
E. Adjust valve clearance, inspect exhaust pipes, change oil, adjust spark plugs

MAINTENANCE SCHEDULE (PICKUP TRUCK)

SYSTEM	Maintenance Items	Odometer reading or months, whichever comes first								
		Miles x 1,000	7.5	15	22.5	30	37.5	45	52.5	60
		Kilometers x 1,000	12	24	36	48	60	72	84	96
		Months	6	12	18	24	30	36	42	48
ENGINE	Valve clearance			A		A		A		A
	Drive belts					R				R
	Engine coolant 8.4-liter capacity					R				R
	Cooling and heating systems									I
	Vacuum fittings, hoses					I				
	Exhaust pipes			I		I		I		I
	Engine oil and oil filter 4.6-liter capacity		Change every 10,000 miles or 18 months, whichever comes first							
FUEL	Idle speed, idle mixture			A		A				A
	Choke system					I				I
	Fuel filter									R
	Air filter					R				R
	Fuel tank cap gasket									R
IGNITION	Ignition wiring					I				I
	Spark control system					I				I
	Spark plugs Gap: 0.032 inches			R		R		R		R

Maintenance operations: A = Adjust; R = Replace; I = Inspect

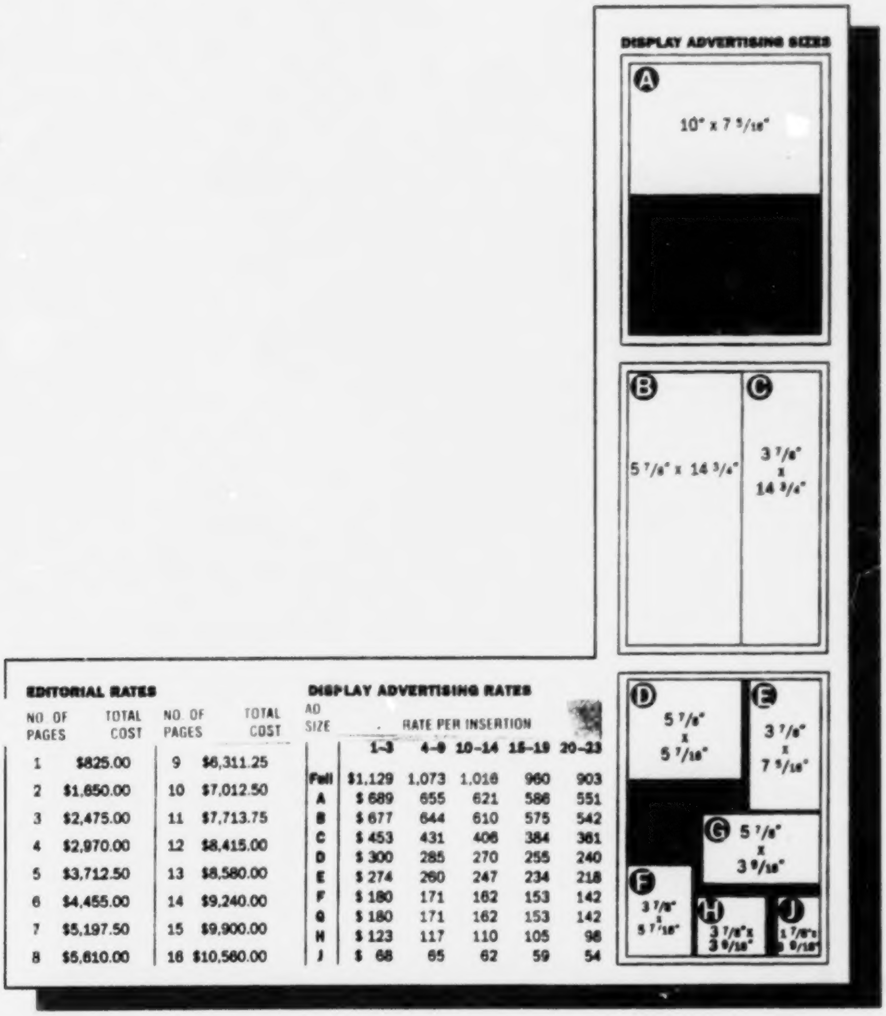
Practice Problem 5.10

Your boss asks you to place a half-page display advertisement in a local newspaper for six issues. How much will each issue's advertisement cost?

A. $431
B. $655
C. $689
D. $1,073
E. $1,129

In addition, your civic association asked you to investigate advertisement costs to find the least expensive display advertisement. The advertisement will be run only one time. How much will it cost?

A. $54
B. $62
C. $68
D. $98
E. $123


DISPLAY ADVERTISING SIZES
A
10" x 7 5/16"
B
5 7/8" x 14 3/4"
C
3 7/8" x 14 3/4"
D
5 7/8" x 5 7/16"
E
3 7/8" x 7 5/16"
G
5 7/8" x 3 9/16"
F
3 7/8" x 5 7/16"
H
3 7/8" x 3 9/16"
J
1 7/8" x 9/16"

EDITORIAL RATES

NO. OF PAGES	TOTAL COST	NO. OF PAGES	TOTAL COST
1	$825.00	9	$6,311.25
2	$1,650.00	10	$7,012.50
3	$2,475.00	11	$7,713.75
4	$2,970.00	12	$8,415.00
5	$3,712.50	13	$8,580.00
6	$4,455.00	14	$9,240.00
7	$5,197.50	15	$9,900.00
8	$5,610.00	16	$10,560.00

DISPLAY ADVERTISING RATES

AD SIZE	RATE PER INSERTION				
	1–3	4–9	10–14	15–19	20–23
Full	$1,129	1,073	1,016	960	903
A	$ 689	655	621	586	551
B	$ 677	644	610	575	542
C	$ 453	431	406	384	361
D	$ 300	285	270	255	240
E	$ 274	260	247	234	218
F	$ 180	171	162	153	142
G	$ 180	171	162	153	142
H	$ 123	117	110	105	98
J	$ 68	65	62	59	54

Practice Problem 5.11

You are responsible for shipping your company's packages. Part of your job is to choose whether packages should be sent by Parcel Post or UPS.

You need to send a 50-pound package to a customer whose ZIP code is 43005. Is it less expensive to send the package by Parcel Post or UPS?

A. Parcel Post
B. UPS

You need to send a 65.5-pound box to ZIP code 98445. How much will it cost to ship the box using UPS?

A. $24.46
B. $24.59
C. $29.15
D. $29.28
E. $38.39
F. $38.52

PARCEL POST

Any fraction of a pound over the weight shown takes the higher rate

Weight Not To Exceed Pounds	Zones 1 & 2	3	4	5	6	7	8
0-2 lb	$2.63	$2.79	$2.87	$2.95	$2.95	$2.95	$2.95
3 lb.	2.78	3.00	3.34	3.88	3.95	3.95	3.95
4 lb	2.87	3.20	3.78	4.68	4.95	4.95	4.95
5 lb.	2.97	3.38	4.18	5.18	5.58	5.95	5.95
6 lb	3.07	3.55	4.39	5.67	6.90	7.75	7.95
7 lb.	3.18	3.71	4.67	6.11	7.51	8.15	9.75
8 lb	3.26	3.85	4.91	6.53	8.08	9.94	11.55
9 lb.	3.33	3.98	5.18	6.92	8.82	10.85	12.95
10 lb	3.42	4.12	5.38	7.29	9.12	11.31	14.00
11 lb.	3.48	4.25	5.58	7.63	9.59	11.93	15.05
12 lb	3.57	4.37	5.79	7.96	10.03	12.52	16.10
13 lb.	3.64	4.47	5.98	8.26	10.45	13.07	17.15
14 lb	3.71	4.59	6.16	8.55	10.84	13.59	18.20
15 lb.	3.77	4.69	6.34	8.82	11.22	14.08	19.25
16 lb	3.83	4.79	6.50	9.09	11.58	14.55	20.30
17 lb.	3.90	4.88	6.66	9.33	11.92	15.00	21.35
18 lb	3.95	4.97	6.81	9.58	12.24	15.42	22.40
19 lb.	4.02	5.05	6.95	9.80	12.56	15.83	23.25
20 lb	4.07	5.14	7.08	10.01	12.84	16.21	23.84
21 lb.	4.12	5.23	7.21	10.23	13.12	16.58	24.41
22 lb	4.18	5.30	7.34	10.43	13.39	16.94	24.96
23 lb.	4.23	5.38	7.47	10.62	13.66	17.28	25.47
24 lb	4.27	5.46	7.58	10.80	13.90	17.60	25.97
25 lb.	4.32	5.53	7.70	10.98	14.14	17.91	26.45
26 lb	4.37	5.60	7.81	11.15	14.37	18.21	26.91
27 lb.	4.42	5.67	7.91	11.31	14.60	18.50	27.34
28 lb	4.46	5.74	8.02	11.47	14.81	18.78	27.77
29 lb.	4.51	5.81	8.12	11.63	15.01	19.05	28.17
30 lb	4.55	5.87	8.21	11.78	15.20	19.30	28.57
31 lb.	4.60	5.92	8.31	11.92	15.39	19.55	28.94
32 lb	4.64	5.99	8.40	12.06	15.58	19.79	29.30
33 lb.	4.68	6.05	8.48	12.20	15.76	20.02	29.66
34 lb	4.72	6.10	8.57	12.32	15.94	20.24	30.00
35 lb.	4.76	6.16	8.66	12.45	16.11	20.48	30.33
36 lb	6.55	7.96	10.50	14.33	18.02	22.41	32.39
37 lb.	6.60	8.01	10.57	14.45	18.18	22.62	32.69
38 lb	6.63	8.07	10.66	14.56	18.32	22.82	32.99
39 lb.	6.67	8.12	10.73	14.67	18.47	23.01	33.28
40 lb	6.70	8.17	10.80	14.79	18.61	23.19	33.56
41 lb	6.75	8.23	10.87	14.88	18.75	23.37	33.82
42 lb	6.78	8.27	10.94	14.99	18.89	23.54	34.08
43 lb.	6.81	8.32	11.02	15.10	19.03	23.71	34.33
44 lb	6.85	8.36	11.08	15.19	19.16	23.87	34.58
45 lb	6.88	8.41	11.15	15.29	19.27	24.03	34.81
46 lb	6.92	8.46	11.21	15.38	19.40	24.19	35.05
47 lb	6.96	8.50	11.27	15.47	19.52	24.34	35.27
48 lb	6.99	8.55	11.34	15.57	19.63	24.49	35.48
49 lb	7.02	8.60	11.40	15.66	19.74	24.63	35.70
50 lb	7.05	8.63	11.45	15.74	19.85	24.77	35.90
51 lb.	7.09	8.67	11.52	15.82	19.95	24.91	36.10
52 lb	7.12	8.72	11.57	15.90	20.06	25.04	36.29
53 lb	7.15	8.76	11.62	15.98	20.17	25.16	36.48
54 lb	7.18	8.80	11.68	16.06	20.26	25.29	36.67
55 lb	7.21	8.83	11.74	16.13	20.36	25.41	36.85
56 lb	7.25	8.88	11.79	16.20	20.45	25.54	37.02
57 lb	7.28	8.92	11.84	16.28	20.55	25.64	37.18
58 lb	7.31	8.95	11.89	16.35	20.64	25.76	37.35
59 lb	7.34	8.99	11.94	16.42	20.72	25.87	37.51
60 lb	7.37	9.03	12.00	16.49	20.82	25.97	37.67
61 lb	7.41	9.07	12.04	16.56	20.90	26.08	37.82
62 lb	7.44	9.10	12.09	16.62	20.98	26.19	37.97
63 lb.	7.46	9.14	12.14	16.68	21.06	26.29	38.12
64 lb	7.49	9.17	12.19	16.75	21.14	26.39	38.25
65 lb.	7.52	9.21	12.23	16.81	21.21	26.48	38.39
66 lb	7.56	9.25	12.27	16.88	21.30	26.57	38.52
67 lb.	7.59	9.28	12.32	16.93	21.37	26.67	38.66
68 lb	7.61	9.31	12.37	16.99	21.43	26.75	38.79
69 lb.	7.64	9.34	12.41	17.05	21.51	26.85	38.90
70 lb	7.67	9.39	12.46	17.10	21.58	26.93	39.03

Rates effective January 1, 1995.

UPS GROUND SERVICE

Any fraction of a pound over the weight shown takes the higher rate

Weight Not To Exceed Pounds	Zones 1 & 2	3	4	5	6	7	8
1 lb.	$2.52	$2.70	$2.94	$3.03	$3.10	$3.19	$3.24
2 lb	2.57	2.75	3.20	3.32	3.51	3.62	3.83
3 lb	2.66	2.81	3.40	3.56	3.82	3.96	4.28
4 lb	2.76	3.04	3.56	3.74	4.05	4.23	4.63
5 lb	2.90	3.19	3.65	3.86	4.22	4.44	4.87
6 lb	3.03	3.28	3.72	3.94	4.35	4.61	5.09
7 lb.	3.14	3.35	3.77	4.01	4.51	4.82	5.36
8 lb	3.26	3.42	3.83	4.07	4.65	5.08	5.68
9 lb.	3.38	3.50	3.90	4.18	4.83	5.37	6.08
10 lb	3.50	3.61	3.99	4.29	5.02	5.74	6.55
11 lb.	3.61	3.72	4.08	4.47	5.28	6.11	7.03
12 lb	3.70	3.84	4.19	4.68	5.56	6.51	7.51
13 lb.	3.78	3.97	4.31	4.94	5.88	6.93	8.02
14 lb	3.86	4.12	4.46	5.19	6.22	7.35	8.53
15 lb.	3.94	4.28	4.65	5.46	6.56	7.79	9.05
16 lb	4.02	4.46	4.84	5.73	6.93	8.24	9.57
17 lb.	4.11	4.64	5.05	5.99	7.29	8.68	10.08
18 lb	4.20	4.80	5.25	6.25	7.65	9.13	10.60
19 lb	4.30	4.96	5.45	6.49	7.99	9.54	11.10
20 lb	4.43	5.11	5.64	6.74	8.34	9.94	11.59
21 lb.	4.56	5.28	5.83	6.98	8.67	10.35	12.08
22 lb	4.69	5.44	6.03	7.24	9.00	10.75	12.58
23 lb.	4.83	5.60	6.22	7.49	9.33	11.16	13.08
24 lb	4.97	5.76	6.42	7.74	9.67	11.57	13.57
25 lb.	5.10	5.92	6.63	8.00	10.01	11.99	14.08
26 lb	5.22	6.10	6.82	8.25	10.34	12.40	14.58
27 lb.	5.36	6.26	7.03	8.51	10.67	12.83	15.08
28 lb	5.46	6.43	7.23	8.78	11.01	13.24	15.58
29 lb.	5.56	6.58	7.45	9.03	11.38	13.67	16.10
30 lb	5.66	6.73	7.67	9.31	11.72	14.09	16.63
31 lb.	5.76	6.88	7.89	9.60	12.08	14.52	17.16
32 lb	5.87	7.03	8.12	9.88	12.45	14.96	17.69
33 lb	5.97	7.20	8.34	10.15	12.80	15.40	18.23
34 lb	6.08	7.36	8.55	10.43	13.14	15.85	18.75
35 lb	6.18	7.54	8.77	10.69	13.47	16.28	19.28
36 lb	6.28	7.73	8.98	10.95	13.81	16.72	19.79
37 lb.	6.38	7.90	9.18	11.22	14.15	17.14	20.30
38 lb	6.47	8.07	9.39	11.48	14.49	17.57	20.80
39 lb.	6.56	8.22	9.58	11.74	14.84	17.99	21.31
40 lb	6.66	8.37	9.79	12.00	15.17	18.42	21.82
41 lb.	6.75	8.52	10.01	12.26	15.50	18.84	22.33
42 lb	6.86	8.67	10.22	12.53	15.85	19.27	22.85
43 lb.	6.96	8.84	10.43	12.79	16.19	19.69	23.36
44 lb	7.06	9.00	10.64	13.06	16.54	20.13	23.87
45 lb.	7.17	9.18	10.85	13.31	16.88	20.55	24.36
46 lb	7.26	9.33	11.06	13.58	17.21	20.97	24.86
47 lb	7.35	9.48	11.27	13.83	17.53	21.36	25.36
48 lb	7.43	9.60	11.47	14.09	17.82	21.74	25.84
49 lb.	7.50	9.71	11.67	14.32	18.10	22.11	26.28
50 lb	7.55	9.80	11.82	14.53	18.37	22.43	26.70
51 lb	7.63	9.91	11.96	14.70	18.62	22.74	27.06
52 lb	7.68	9.99	12.08	14.82	18.82	22.97	27.34
53 lb	7.74	10.06	12.17	14.91	18.98	23.16	27.55
54 lb	7.78	10.10	12.22	14.99	19.05	23.27	27.68
55 lb.	7.83	10.15	12.29	15.08	19.14	23.39	27.83
56 lb	7.89	10.21	12.35	15.13	19.22	23.50	27.95
57 lb.	7.94	10.26	12.40	15.21	19.30	23.61	28.07
58 lb	8.01	10.33	12.46	15.28	19.39	23.71	28.20
59 lb.	8.07	10.39	12.51	15.35	19.48	23.82	28.32
60 lb	8.13	10.45	12.56	15.43	19.56	23.92	28.46
61 lb.	8.19	10.51	12.63	15.51	19.65	24.03	28.60
62 lb	8.25	10.56	12.68	15.58	19.73	24.14	28.73
63 lb.	8.30	10.62	12.74	15.66	19.83	24.24	28.88
64 lb	8.36	10.67	12.79	15.73	19.92	24.35	29.01
65 lb.	8.41	10.73	12.84	15.81	20.01	24.48	29.16
66 lb	8.46	10.78	12.90	15.87	20.10	24.59	29.28
67 lb.	8.52	10.85	12.96	15.94	20.19	24.71	29.42
68 lb	8.57	10.91	13.01	15.99	20.28	24.83	29.54
69 lb.	8.65	11.01	13.12	16.21	20.57	25.09	29.74
70 lb	8.71	11.06	13.17	16.26	20.65	25.35	29.99

Rates effective February 3, 1996.

ZIP CODE PREFIX AND ZONE CHART

Prefix	Zone	Prefix	Zone	Prefix	Zone	Prefix	Zone	Prefix	Zone	Prefix	Zone	Prefix	Zone
004-005	6	258-279	5	369	2	463-466	6	704	2	776-777	3	855-865	6
006-009	7	280-282	4	370-374	4	467-479	4	705-706	3	778-784	4	870-872	5
010-043	6	283-285	5	375	3	480-525	5	707-709	2	785	5	873-874	6
044	7	286-294	4	376-379	4	526	4	710-711	3	786-789	4	875-885	5
045	6	295	5	380-384	3	527-564	5	712-714	2	790-791	5	889-898	7
046-047	7	296-323	4	385	4	565-567	6	716-725	3	792	4	940-949	8
048-079	6	324-325	3	386	3	570-575	6	726-727	4	793-794	5	950-953	7
080-084	5	326-328	4	387-389	2	576-593	6	728-729	3	795-796	4	954-955	8
085-139	6	329-334	5	390-392	1	594-599	7	730-738	4	797-812	5	956-958	7
140-187	5	335-338	4	393-395	2	600-613	5	739	5	813-816	6	959-960	8
188	6	339-341	5	396	1	614-637	4	740-748	4	820	5	961	7
189-241	5	342-349	4	397	2	638-639	3	749	3	821-832	6	962-977	8
242	4	350-353	3	398-427	4	640-668	4	750-754	4	833	7	978-979	7
243-245	5	354	2	430-449	5	669	5	755-757	3	834	6	980-989	8
246-248	4	355-364	3	450-454	4	670-675	4	758	4	835-838	7	990-994	7
249-254	5	365-366	2	455-458	5	676-693	5	759	3	840-853	6	995-999	8
255-257	4	367-368	3	459-462	4	700-703	3	760-775	4	854	7		

Practice Problem 5.12

According to the chart below, as electrical wire gets thicker, the number describing it gets:

A. Smaller
B. Larger

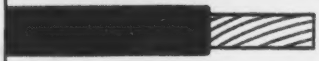
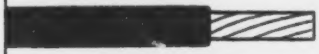
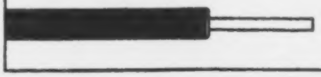
According to the chart below, the thicker the wire, the ______________ the amperage rating.

A. Higher
B. Lower

Is the circuit conductor (wire) required for a refrigerator thicker or thinner than the circuit conductor required for a range?

A. The refrigerator wire should be thicker.
B. The range wire should be thicker.

Common Conductor Sizes and Amperage Ratings for Most Residential Wiring Installations

AWG (SIZE)	AMPERAGE RATING @ 60° C	AMPERAGE RATING @ 75° C
	101 AMPERES OR LESS	101 AMPERES OR MORE
#1	110	130
 #2	95	115
 #4	70	85
#6	55	65
#8	40	50
#10	30	35
#12	20	25
 #14	15	20

Circuit Requirements for Kitchen and Laundry Circuits
(Voltage, Conductor Sizes and Breaker Rating)

Kitchen Appliances	Voltage	Circuit Conductor Size	Breaker Rating	Circuit Type
Range	120-240	No. 6 AWG	50	Individual Circuit
Range Double Oven	120-240	No. 4 AWG	70	Individual Circuit
Built-in Oven	120-240	No. 10 AWG	30	Individual Circuit
Range Top	120-240	No. 8 AWG	40	Individual Circuit
Broiler/Roaster	120	No. 12 AWG	20	Small Appliance Circuit
Fry Pan	120	No. 12 AWG	20	Small Appliance Circuit
Coffee Maker	120	No. 12 AWG	20	Small Appliance Circuit
Portable Grill	120	No. 12 AWG	20	Small Appliance Circuit
Kitchen Receptacles	120	No. 12 AWG	20	2 Small Appliance Circuits (minimum)
Exhaust Fan	120	No. 12 AWG	20	General Purpose Lighting Circuit
Refrigerator	120	No. 12 AWG	20	Recommend Separate Circuit
Food Freezer	120	No. 12 AWG	20	Recommend Separate Circuit
Dishwasher	120	No. 12 AWG	20	Recommend Separate Circuit
Waste Disposal	120	No. 12 AWG	20	May combine with Dishwasher Circuit
Laundry Appliances				
Washer	120	No. 12 AWG	20	Separate Circuit
Dryer	120/240	No. 10 AWG	30	Individual Circuit
High Speed Dryer	120/240	No. 6 AWG	50	Individual Circuit
Clothes Iron	120	No. 12 AWG	20	May use Separate Washer Circuit
Water Heater	240	No. 10 AWG	30-40	Individual Circuit

Practice Problem 5.13

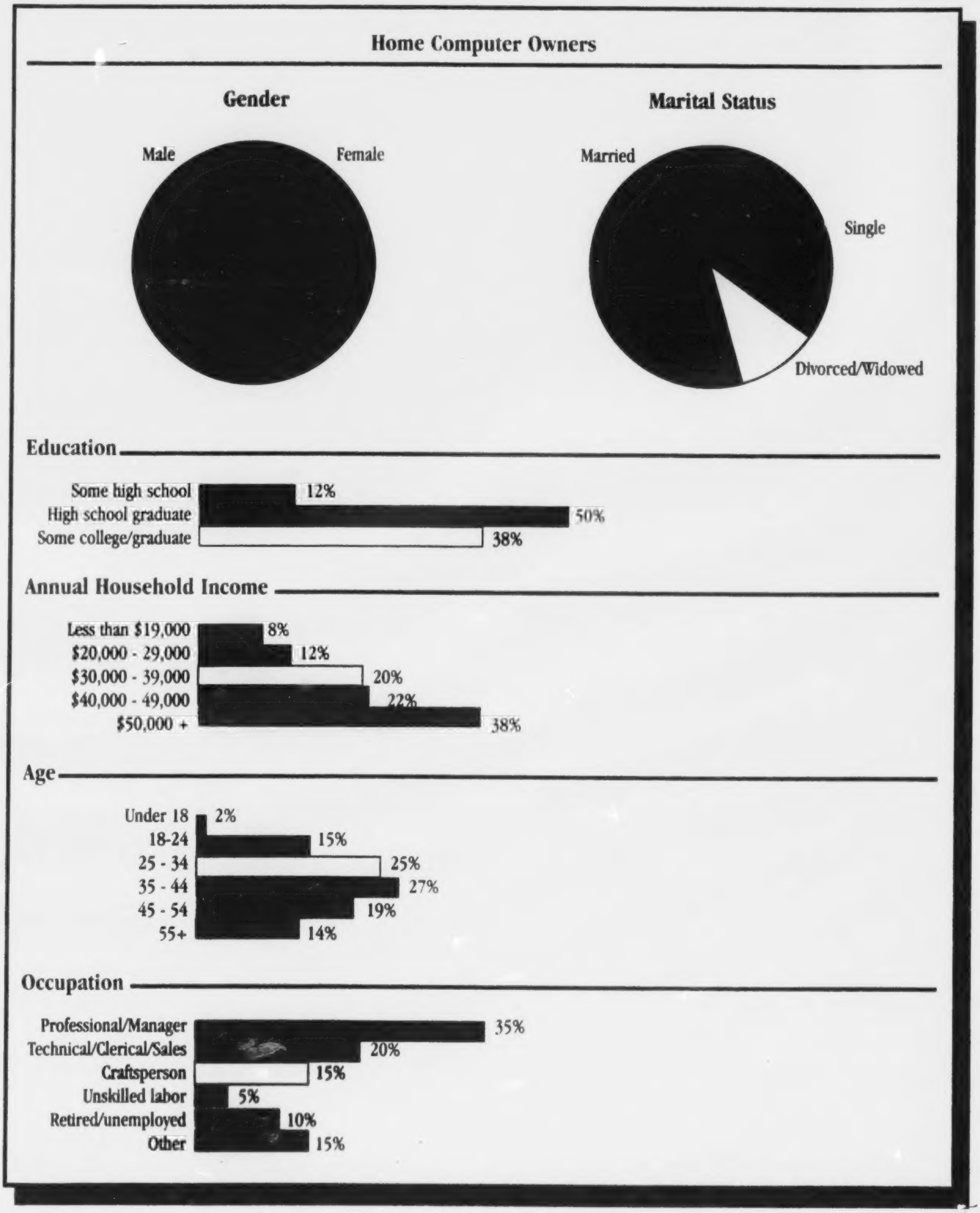
You are responsible for marketing your company's computers. Your focus is on home computing. Answer these questions using the charts on p. 119.

Most home computer owners are:
  A. Craftspeople
  B. Retired
  C. Professionals or managers
  D. Technical, clerical, or sales people
  E. Unskilled laborers

Which group is most likely to buy your company's computers?
  A. Married males over 45
  B. Single males under 25
  C. Married females ages 25-44
  D. Single or divorced males ages 25-44
  E. Married males ages 25-44

Which group is least likely to buy your company's computers?
  A. Divorced women who make less than $20,000
  B. Divorced women who make less than $30,000
  C. Married women who make less than $20,000
  D. Married women who make less than $30,000
  E. Divorced men who make less than $30,000

Based on the data provided in the graphics, the __________ a person's income, the more likely they will own a home computer.
  A. Higher
  B. Lower



Home Computer Owners

Practice Problem 5.14

You are required by your employer to maintain safe workplace practices. You need to choose the wire rope that is as effective (efficient) as possible for each lifting and tie-down task. Answer the following questions about the characteristics and uses of the rope and terminals at the end of the rope.

When using rope with a mechanical spliced sleeve, are ropes with IWRC or rope with FC most efficient?

A. Ropes with IWRC
B. Ropes with FC

Which is most efficient: carbon steel or stainless steel rope?

A. Carbon steel rope
B. Stainless steel rope

What type of terminal is diagramed in the Dimensions of Sockets chart?

A. Wire rope socket
B. Mechanical splice
C. Wedge socket
D. Clip
E. Loop or thimble splice

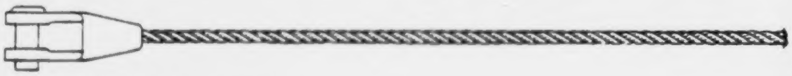
What is the diameter of the pin hole on a socket that holds 1 1/4-inch rope?

A. 1 1/16 inch
B. 1 1/4 inch
C. 1 5/8 inch
D. 2 1/8 inch
E. 3 1/8 inch

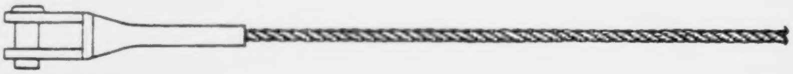
TERMINAL EFFICIENCIES (APPROXIMATE)
Efficiencies are applicable to nominal wire rope strengths

	Efficiency	
Type of Termination	Rope with IWRC*	Rope with FC**
Wire Rope Socket (Spelter or Resin)	100%	100%
Swaged Socket (Regular Lay Ropes Only)	100%	(Not Recommended)
Mechanical Spliced Sleeve (Flemish Eye)		
1" dia. and smaller	95%	92-1/2%
Greater than 1" dia. through 2"	92-1/2%	90%
Greater than 2" dia. through 3-1/2"	90%	(Not established)
Loop or Thimble Splice-Hand Spliced (Tucked) (Carbon Steel Rope)		
1/4"	90%	90%
5/16"	89%	89%
3/8"	88%	88%
7/16"	87%	87%
1/2"	86%	86%
5/8"	84%	84%
3/4"	82%	82%
7/8" thru 2-1/2"	80%	80%
Loop or Thimble Splice-Hand Spliced (Tucked) (Stainless Steel Rope)		
1/4"	80%	
5/16"	79%	
3/8"	78%	
7/16"	77%	
1/2"	76%	
5/8"	74%	
3/4"	72%	
7/8"	70%	
Wedge Sockets*** (Depending on Design)	75% to 80%	75% to 80%
Clips*** (Number of clips varies with size of rope)	80%	80%

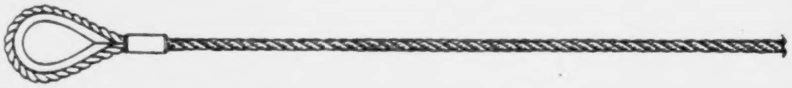
*IWRC = Independent Wire Rope Core **FC=Fiber Core
*** Typical values when applied properly. Refer to fittings manufacturers for exact values and method.



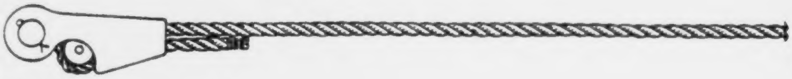
WIRE ROPE SOCKET - POURED SPELTER OR RESIN



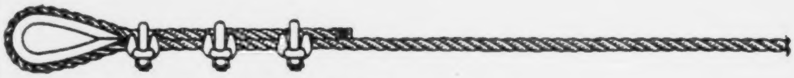
WIRE ROPE SOCKET - SWAGED



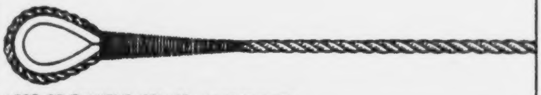
MECHANICAL SPLICE - LOOP OR THIMBLE



WEDGE SOCKET

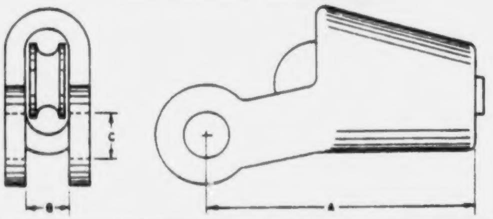


CLIPS - NUMBER OF CLIPS VARIES WITH ROPE SIZE AND CONSTRUCTION



LOOP OR THIMBLE SPLICE - HAND TUCKED

DIMENSIONS OF SOCKETS (inches)



Diameter of rope	Center of pin hole to end of socket A	Opening between ears B	Diameter of pin hole C	Approximate wt (lb)
3/8	4 3/4	5/8	13/16	2.5
1/2	5 1/2	5/8	1 1/16	2.5
5/8	7	1 1/4	1 3/16	5
3/4	7 1/2	1 3/8	1 1/4	9
7/8	9	1 1/2	1 5/8	15
1	9 3/4	1 5/8	1 5/8	20
1 1/8	10 5/8	1 5/8	1 5/8	23
1 1/4	11 3/4	1 3/4	2 1/8	32
1 3/8	11 3/4	1 3/4	2 1/8	32
1 1/2	13 1/4	2 1/2	3 1/8	52
1 5/8	13 1/4	2 1/2	3 1/8	52

Note:.Dimensions are for reference only. Consult your supplier of the specific fittings for exact details.

Practice Problem 5.15

Your floral company is incorporated. You just filed an amended tax return using the required Form 1120-A.

According to the tax form, your company paid 1998 taxes in the amount of:

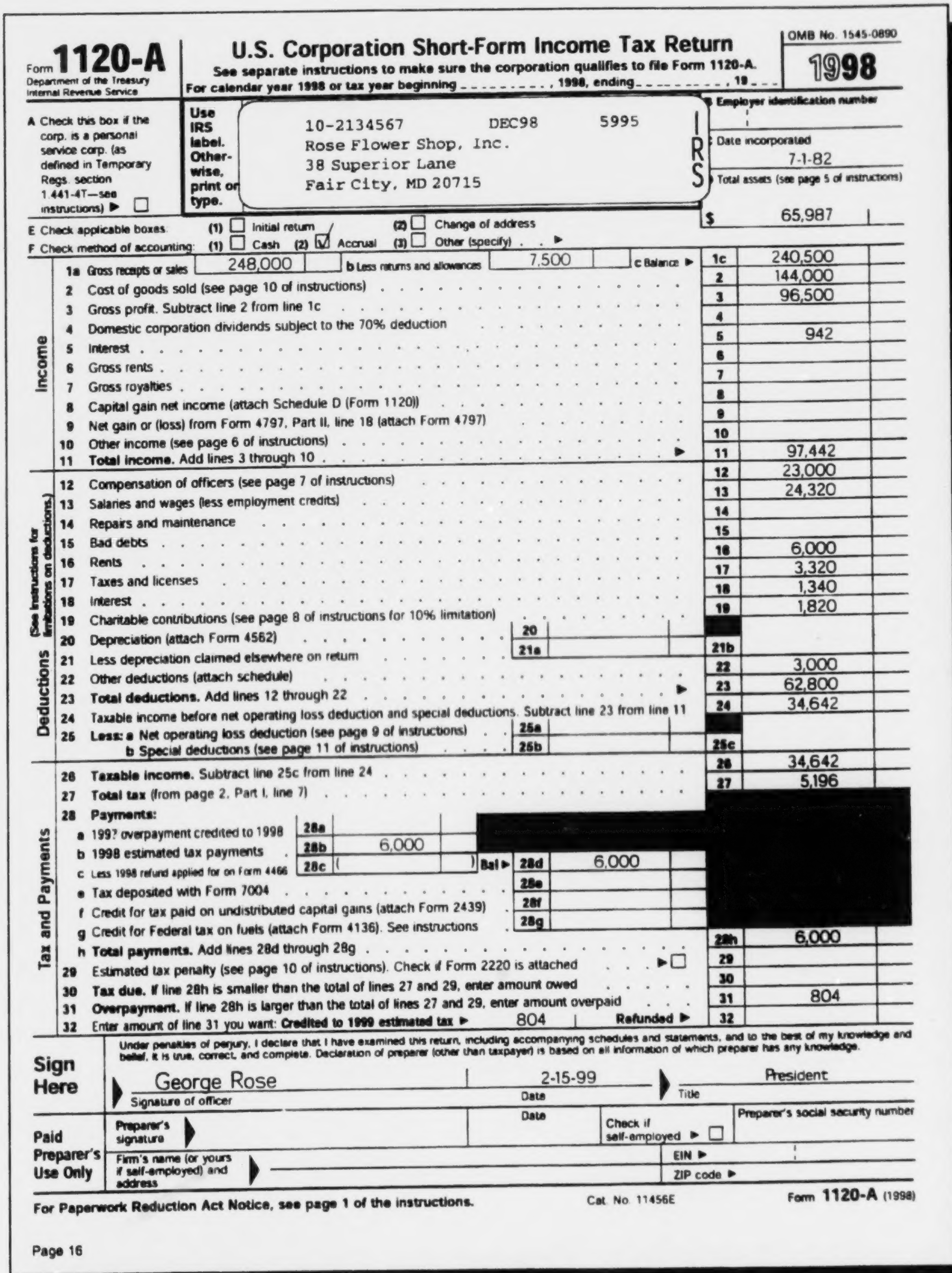
A. \$240,500
B. \$97,442
C. \$34,642
D. \$6,000
E. \$5,196
F. \$804

According to the tax form, what did the company choose to do with the tax overpayment?

A. Receive it as a refund
B. Apply it to 1999 estimated tax
C. Apply it to next year's income
D. Make a charitable contribution
E. Add it to the corporate balance sheet

At the end of the tax year, were your company's assets higher or lower than they were at the beginning of the year?

A. Assets were higher at the beginning of the year.
B. Assets were higher at the end of the year.



Form **1120-A**
Department of the Treasury
Internal Revenue Service

U.S. Corporation Short-Form Income Tax Return

See separate instructions to make sure the corporation qualifies to file Form 1120-A.

For calendar year 1998 or tax year beginning ________, 1998, ending ________, 19__

OMB No. 1545-0890

1998

A Check this box if the corp. is a personal service corp. (as defined in Temporary Regs. section 1.441-4T—see instructions) ▶ ☐

Use IRS label. Otherwise, print or type.

10-2134567 DEC98 5995
Rose Flower Shop, Inc.
38 Superior Lane
Fair City, MD 20715

IRS

B Employer identification number

C Date incorporated 7-1-82

D Total assets (see page 5 of instructions) $ 65,987

E Check applicable boxes: (1) ☐ Initial return (2) ☐ Change of address

F Check method of accounting: (1) ☐ Cash (2) ☑ Accrual (3) ☐ Other (specify) . . ▶

Income	1a Gross receipts or sales 248,000	b Less returns and allowances 7,500	c Balance ▶	1c	240,500
	2 Cost of goods sold (see page 10 of instructions)			2	144,000
	3 Gross profit. Subtract line 2 from line 1c			3	96,500
	4 Domestic corporation dividends subject to the 70% deduction			4	
	5 Interest			5	942
	6 Gross rents			6	
	7 Gross royalties			7	
	8 Capital gain net income (attach Schedule D (Form 1120))			8	
	9 Net gain or (loss) from Form 4797, Part II, line 18 (attach Form 4797)			9	
	10 Other income (see page 6 of instructions)			10	
	11 **Total income.** Add lines 3 through 10 ▶			11	97,442
Deductions (See instructions for limitations on deductions.)	12 Compensation of officers (see page 7 of instructions)			12	23,000
	13 Salaries and wages (less employment credits)			13	24,320
	14 Repairs and maintenance			14	
	15 Bad debts			15	
	16 Rents			16	6,000
	17 Taxes and licenses			17	3,320
	18 Interest			18	1,340
	19 Charitable contributions (see page 8 of instructions for 10% limitation)			19	1,820
	20 Depreciation (attach Form 4562)	20			
	21 Less depreciation claimed elsewhere on return	21a		21b	
	22 Other deductions (attach schedule)			22	3,000
	23 **Total deductions.** Add lines 12 through 22 ▶			23	62,800
	24 Taxable income before net operating loss deduction and special deductions. Subtract line 23 from line 11			24	34,642
	25 **Less:** a Net operating loss deduction (see page 9 of instructions)	25a			
	b Special deductions (see page 11 of instructions)	25b		25c	
Tax and Payments	26 **Taxable income.** Subtract line 25c from line 24			26	34,642
	27 **Total tax** (from page 2, Part I, line 7)			27	5,196
	28 **Payments:**				
	a 1997 overpayment credited to 1998	28a			
	b 1998 estimated tax payments	28b 6,000			
	c Less 1998 refund applied for on Form 4466	28c ( )	Bal ▶ 28d 6,000		
	e Tax deposited with Form 7004	28e			
	f Credit for tax paid on undistributed capital gains (attach Form 2439)	28f			
	g Credit for Federal tax on fuels (attach Form 4136). See instructions	28g			
	h **Total payments.** Add lines 28d through 28g			28h	6,000
	29 Estimated tax penalty (see page 10 of instructions). Check if Form 2220 is attached ▶ ☐			29	
	30 **Tax due.** If line 28h is smaller than the total of lines 27 and 29, enter amount owed			30	
	31 **Overpayment.** If line 28h is larger than the total of lines 27 and 29, enter amount overpaid			31	804
	32 Enter amount of line 31 you want: **Credited to 1999 estimated tax** ▶ 804	**Refunded** ▶		32	

Sign Here

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

▶ George Rose | 2-15-99 | ▶ President
Signature of officer | Date | Title

Paid Preparer's Use Only

Preparer's signature ▶ | Date | Check if self-employed ▶ ☐ | Preparer's social security number
Firm's name (or yours if self-employed) and address ▶ | EIN ▶ | ZIP code ▶

For Paperwork Reduction Act Notice, see page 1 of the instructions. Cat. No. 11456E Form **1120-A** (1998)

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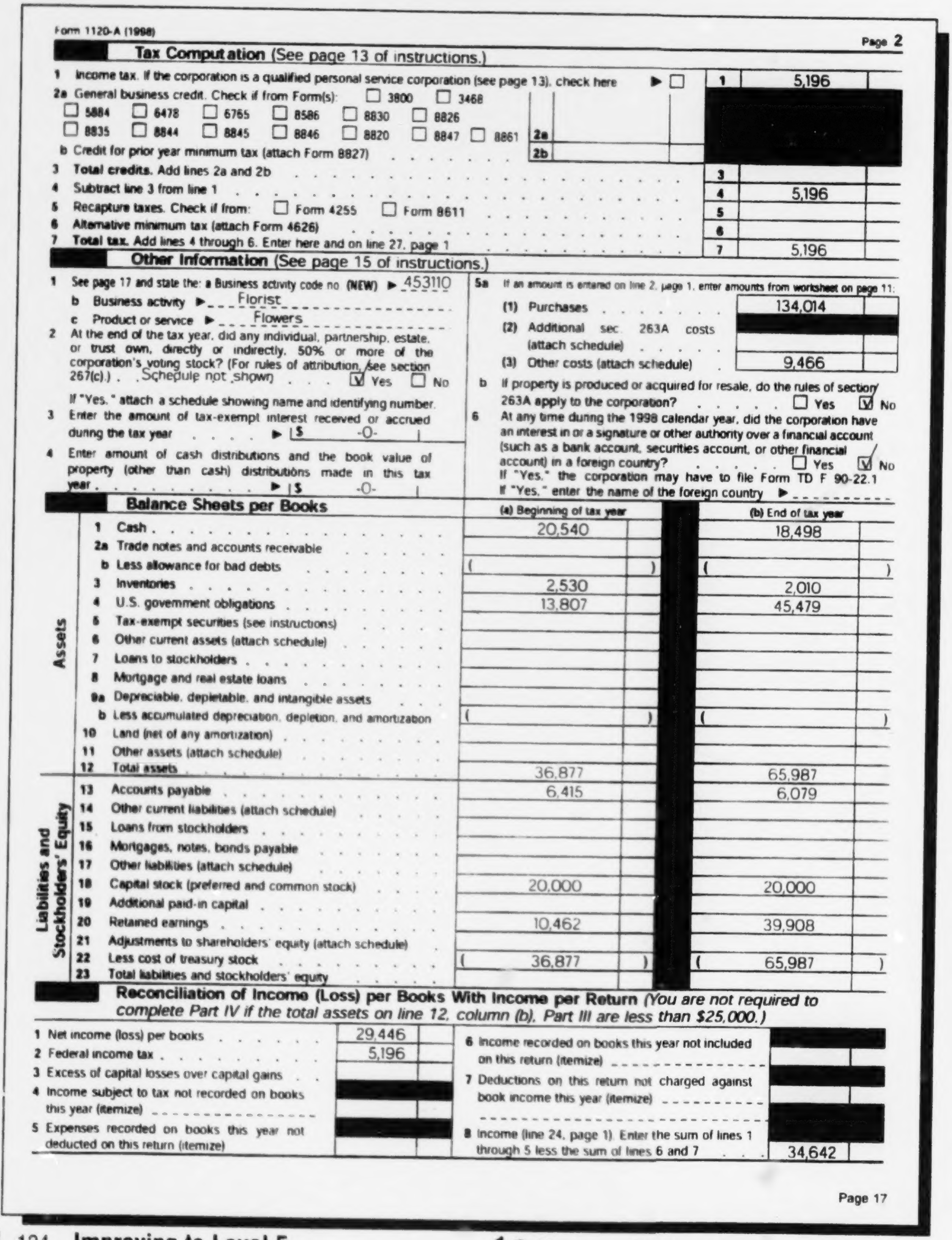

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Tax Computation (See page 13 of instructions.)

1	Income tax. If the corporation is a qualified personal service corporation (see page 13), check here ▶ ☐	1	5,196
2a	General business credit. Check if from Form(s): ☐ 3800 ☐ 3468 ☐ 5884 ☐ 6478 ☐ 6765 ☐ 8586 ☐ 8830 ☐ 8826 ☐ 8835 ☐ 8844 ☐ 8845 ☐ 8846 ☐ 8820 ☐ 8847 ☐ 8861 — 2a		
b	Credit for prior year minimum tax (attach Form 8827) — 2b		
3	**Total credits.** Add lines 2a and 2b	3	
4	Subtract line 3 from line 1	4	5,196
5	**Recapture taxes.** Check if from: ☐ Form 4255 ☐ Form 8611	5	
6	**Alternative minimum tax** (attach Form 4626)	6	
7	**Total tax.** Add lines 4 through 6. Enter here and on line 27, page 1	7	5,196

Other Information (See page 15 of instructions.)

1 See page 17 and state the: a Business activity code no. **(NEW)** ▶ 453110

b Business activity ▶ Florist

c Product or service ▶ Flowers

2 At the end of the tax year, did any individual, partnership, estate, or trust own, directly or indirectly, 50% or more of the corporation's voting stock? (For rules of attribution, see section 267(c).) Schedule not shown ☑ Yes ☐ No

If "Yes," attach a schedule showing name and identifying number.

3 Enter the amount of tax-exempt interest received or accrued during the tax year ▶ $ -0-

4 Enter amount of cash distributions and the book value of property (other than cash) distributions made in this tax year ▶ $ -0-

5a If an amount is entered on line 2, page 1, enter amounts from worksheet on page 11:

(1)	Purchases	134,014
(2)	Additional sec. 263A costs (attach schedule)	
(3)	Other costs (attach schedule)	9,466

b If property is produced or acquired for resale, do the rules of section 263A apply to the corporation? ☐ Yes ☑ No

6 At any time during the 1998 calendar year, did the corporation have an interest in or a signature or other authority over a financial account (such as a bank account, securities account, or other financial account) in a foreign country? ☐ Yes ☑ No

If "Yes," the corporation may have to file Form TD F 90-22.1

If "Yes," enter the name of the foreign country ▶

Balance Sheets per Books

			(a) Beginning of tax year	(b) End of tax year
Assets	1	Cash	20,540	18,498
	2a	Trade notes and accounts receivable		
	b	Less allowance for bad debts	( )	( )
	3	Inventories	2,530	2,010
	4	U.S. government obligations	13,807	45,479
	5	Tax-exempt securities (see instructions)		
	6	Other current assets (attach schedule)		
	7	Loans to stockholders		
	8	Mortgage and real estate loans		
	9a	Depreciable, depletable, and intangible assets		
	b	Less accumulated depreciation, depletion, and amortization	( )	( )
	10	Land (net of any amortization)		
	11	Other assets (attach schedule)		
	12	Total assets	36,877	65,987
Liabilities and Stockholders' Equity	13	Accounts payable	6,415	6,079
	14	Other current liabilities (attach schedule)		
	15	Loans from stockholders		
	16	Mortgages, notes, bonds payable		
	17	Other liabilities (attach schedule)		
	18	Capital stock (preferred and common stock)	20,000	20,000
	19	Additional paid-in capital		
	20	Retained earnings	10,462	39,908
	21	Adjustments to shareholders' equity (attach schedule)		
	22	Less cost of treasury stock	(36,877)	(65,987)
	23	Total liabilities and stockholders' equity		

Reconciliation of Income (Loss) per Books With Income per Return *(You are not required to complete Part IV if the total assets on line 12, column (b), Part III are less than $25,000.)*

1 Net income (loss) per books	29,446	6 Income recorded on books this year not included on this return (itemize)	
2 Federal income tax	5,196	7 Deductions on this return not charged against book income this year (itemize)	
3 Excess of capital losses over capital gains			
4 Income subject to tax not recorded on books this year (itemize)			
5 Expenses recorded on books this year not deducted on this return (itemize)		8 Income (line 24, page 1). Enter the sum of lines 1 through 5 less the sum of lines 6 and 7	34,642

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Practice Problem 5.16

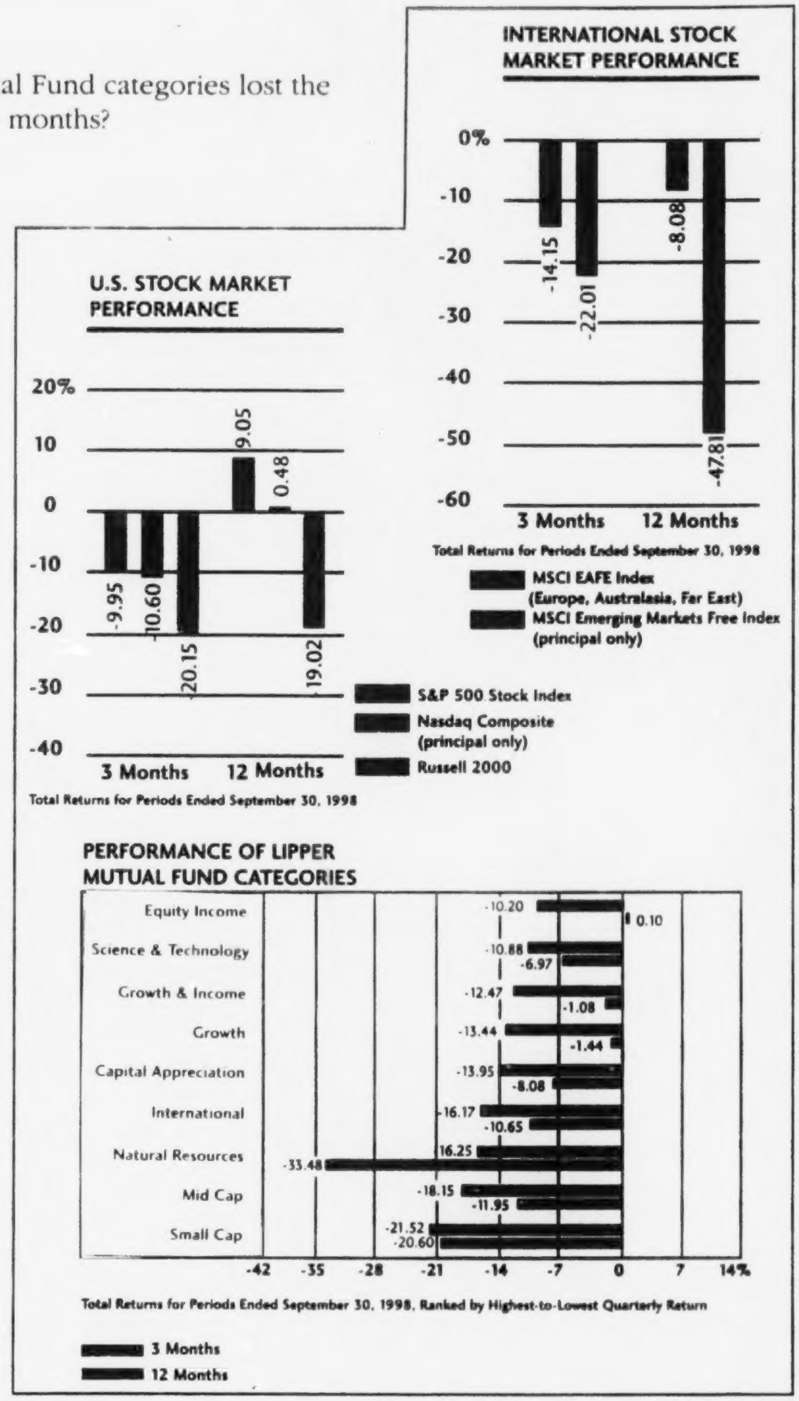
You received the quarterly report of stock performance, as illustrated on the graphs below.

Did stocks increase or decrease this quarter?
  A. Stocks increased
  B. Stocks decreased

Which stocks in the Lipper Mutual Fund categories lost the most value during the past three months?
  A. Equity income
  B. Science and technology
  C. Growth
  D. Capital appreciation
  E. Natural resources

Which statement about U.S. stock market performance is correct?
  A. The Standard and Poors 500 Index performed better than the Russell 2000 during the past year.
  B. The Standard and Poors 500 Index performed worse than the Russell 2000 during the past year.
  C. The Nasdaq Composite Index performed better than the Standard and Poors 500 during the past year.
  D. The Russell 2000 performed better than the Standard and Poors 500 during the past three months.

Which statement is correct?
  A. During the past year, international stocks performed better than U.S. stocks.
  B. During the past year, U.S. stocks performed better than international stocks.



Answers to Improving to Level 5 Practice Problems

5.1 A. Room 1

B. 2 filters (They are labeled Filter A and Filter B.)

5.2 E. 160 miles

B. Through Willow (Even though it is more miles, it is a quicker route.)

5.3 B. Complete a cash refund authorization form.

5.4 A. Shift 1

D. Thursday (There was slightly higher productivity on Thursday than on Friday.)

5.5 B. Disconnect the hose from Pipe A and connect it to the vacuum pump.

E. Check for a restriction in the hose from VCV Pipe B to the air cleaner.
Note: The wording in the answers is changed slightly from the wording on the flowchart. However, the meanings are the same.

5.6 C. Fax, copy, and print

B. 13

5.7 D. 400mm HG

5.8 32 pair of size 39 (European size 39 is equivalent to American size 8; 32 pair of size-8 shoes were sold last year.)

E. 2508-140 (This is the only sandal sold in navy blue Nappa leather.)

C. $166 (This is the retail price for style 2508.)

5.9 D. Adjust valve clearance, inspect exhaust pipes, change oil, replace spark plugs (Learners need to calculate that 3 years equals 36 months. Also, they need to notice that oil should be changed every 18 months.)

5.10 B. $655 (Display size A is $^1/_2$ page; 4-9 size-A advertisements cost $655 each.)

C. $68

5.11 B. UPS is less expensive ($14.83 vs. $15.74 for Parcel Post)

D. $29.28

5.12 A. Smaller

A. Higher

B. The range wire should be thicker.

5.13 C. Professional or manager

E. Married males ages 25-44

A. Divorced women who make less than $20,000

A. Higher

5.14 A. Ropes with IWRC

A. Carbon steel rope

C. Wedge socket

D. 2 1/8 inch

5.15 E. $5,196 (Line 27 shows the total tax.)

B. Apply it to 1999 estimated tax (Line 32 shows this.)

B. Assets were higher at the end of the year (The balance sheet on the second page shows the total assets for the beginning and ending of the tax year.)

5.16 B. Stocks decreased

E. Natural resources

A. The S&P 500 Index performed better than the Russell 2000 during the past year.

B. During the past year, U.S. stocks performed better than international stocks.

Insert the

“Improving to Level 6”

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Locating Information—Improving to Level 6

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Characteristics of Level 6 Graphics

Level 6 graphics contain a variety of extremely complex, often long, workplace graphics. Tables, forms, maps, blueprints, and diagrams include a considerable amount of **detail**. Graphs present data that may be confusing or unclear because of the amount of data, the presentation, or both. In addition, Level 6 tasks often involve using multiple graphics, interpreting very technical terminology and symbols, completing several steps, applying numerous criteria, and using higher-order thinking skills.

Level 6 Locating Information Skills

The Level 6 Locating Information skills include all the skills needed at previous levels. The previously covered skills of **using verbal and visual clues**, **sorting information**, and **eliminating unnecessary information** are especially important at this level. The Level 6 skills are:

- ***Make decisions*** **requiring judgements** based on information presented in complex graphics.
- ***Draw conclusions*** **requiring judgements** based on information presented in complex graphics.
- ***Make predictions*** **requiring judgements** based on information presented in complex graphics.
- ***Apply*** **information to specific situations and criteria** using one complex graphic or several related graphics.

Level 6 tasks often require learners to **complete several steps** and/or **apply many criteria**. In addition, learners need to **use higher order thinking skills**. For example, they may need to *unravel* complicated data and *summarize* it into a specific conclusion.

Important! The graphics used in Level 5 and Level 6 problems can be the same. However, instructors should ask different types of questions when helping learners improve to Level 6. These questions should require learners to **make decisions**, **draw conclusions**, **make predictions**, and **apply information to specific situations and criteria**.

Learning Activities for Helping Learners Improve to Level 6

The learning activities and practice problems in this section will help learners improve to Locating Information Level 6. Suggested learning activities follow. Practice problems can be found on pp. 134–156.

At Level 6, learners should be able to use one or more extremely complex graphics to make decisions or complete tasks. The following learning activities will help them develop and practice Level 6 skills.

- Teach learners a **strategy for drawing conclusions and making decisions** based on graphic information. Encourage them to ask themselves the following questions:
  - What am I being asked to decide?
  - What information will I need to make a good decision?
  - How can these graphics help me make that decision?
  - Can I summarize or identify trends in the graphics that will make the decision clearer?
- Teach learners a **strategy for using criteria to interpret and extract information** from graphics. Encourage them to take these steps:
  1. Carefully examine the current situation to determine your current needs. These are the criteria you will use to analyze the graphic information and select the information needed.
  2. Choose the information needed—depending on the specific situation.
- Instructors should provide practice in **using Level 6 graphics** by requiring learners to read and interpret them. Graphics that are common at Level 6 are similar to Level 5 graphics, except that they may be more complicated and may include more jargon. In addition, they require learners to *do more* than summarize and compare trends and main points—they must draw conclusions and make decisions based on those conclusions. Level 6 graphics include, but are not limited to, those listed.
  - Several related multiple-bar graphs
  - Line graphs plotting several categories of data
  - Several related pie charts containing many sections
  - Diagrams with less familiar forms, more details, and unusual perspectives
  - Charts and tables with considerable detail and technical information

- Multiple graphics that contain information related to completing one task

Instructors and learners can find complex graphics in many **business and government publications**; most are available on the Internet. For example, Level 6 graphics can be obtained from these sources:

- The Census Bureau and the Departments of Labor, Education, Health and Human Services publish reports and documents.
- Maps generated by the government (e.g., city zoning maps) contain detailed information that is unfamiliar to many learners.
- Insurance and investment businesses publish materials that include detailed tables, charts, and graphs. For example, they publish damageability ratings of various car models. Those ratings are used to determine insurance rates, which are listed on another graphic.
- Stock market information includes tables, charts, and graphs.
- Blueprints include unfamiliar terminology and formats.
- IRS tax guides and forms contain complicated material (e.g., depreciation and amortization schedules and tables).
- Car and appliance repair manuals contain detailed diagrams and technical tables.
- Corporate annual reports often contain complex, detailed tables and graphics.
- Retailers of cars, computers, and appliances often use technical information in chart form, which allows consumers to compare various models.
- The federal government has forms for many things, including patent and job applications.

- Give learners practice in **drawing conclusions**, using graphics with confusing presentations. For example, a multi-line graph that includes the performance of 4–6 stocks over the past year could be used to help learners determine which stocks were the best performers and which stocks changed in value the most.
- Give learners practice in **making summarizing statements** and **drawing conclusions** by reading the graphics in corporate annual reports. Ask questions that require learners to draw conclusions about the company's sales over the year.
- Give learner practice at **making judgements** and **drawing conclusions** using hazardous material (hazmat) ratings in each of the hazmat rating categories (i.e., health, reactive, fire, special) and the icons (symbols) used to describe each category for materials used in the workplace. Have them review a list or chart containing the ratings

and make judgements about a material or category of material (e.g., protective gear that should be used and how each material should be stored).

- Have students **use multiple documents** that relate to the same topic. In many cases, data from one graphic is used as a point of entry into other graphics. For example, have learners use the IRS depreciation and amortization schedule (Form 4562) and the accompanying depreciation tables.

- Give learners a set of **criteria** to guide their choices for buying a consumer product (e.g., television, car, stove). Include size, price, safety features, color, and convenience features. Have them use charts that describe the features and prices of models from at least two manufacturers.

- Ask teams of learners to **develop a plan** for hosting someone visiting one of their workplaces for a one- or two-day meeting. (If they are not currently working, have them imagine they work for an existing business or create a fictitious one.)

  Either instructors or learners can provide the needed airplane schedules, car rental schedules, and maps. Note: Some travel-related Internet sites provide all needed information for any designated city or region. Some Internet sites are listed in Appendix B. Also, most telephone books contain maps and other helpful travel-related information.

  The instructor should provide specific **criteria** as appropriate. For example, travel criteria might include the earliest departure and latest arrival times. Lodging and transportation criteria might include cost and location limitations. Note: Learners will need to prioritize the criteria. For example, they may need to choose a hotel that does not meet location criteria to meet the cost criteria or vice versa.

  Each team should do the following:

  - Use airplane schedules to determine the best arrival and departure times, airlines, and flight numbers.

  - Determine car rental information, including locations and costs.

  - Use city maps to determine the best routes to take from the airport to the hotel and business locations.

  - Select a hotel based on specified criteria (e.g., proximity to the business and restaurants, cost).

- Give learners Level 6 graphics that are interpreted incorrectly and have them **find mistakes** and **make corrections**.

- Have learners write a paragraph to explain how they interpreted a graphic.

Practice Problems for Improving to Level 6

The following practice problems will help learners improve to Locating Information Level 6. These problems resemble those on the Work Keys Locating Information Assessment.

Each problem requires learners to draw conclusions from the information presented in the graphics, apply information to specific situations and criteria, or use more than one complex graphic or type of graphic to complete a task. Instructors are encouraged to develop additional practice problems for classroom use that use Level 6 graphics.

Answers to these practice problems are on pp. 157–158.

Practice Problem 6.1

You have been asked to purchase a VCR for your company's Training Department. The trainers told you that the VCR should have the following specifications:

- Auto Channel Set
- Shuttle Function
- A/V Inputs on the Front of the VCR
- 4 Heads
- 52-week Timer
- Cost no more than $400

According to the table on p. 135, which VCR fits the Training Department's specifications?

A. RCA VR-652HF
B. Pioneer CLD-S104
C. JVC HR-VP830
D. JVC HR-VP638
E. Sony SLV-790HF

The Human Resources Department also wants a VCR. Its specifications are:

- Auto Channel Set
- Both Jog and Shuttle Function
- A/V Inputs on the Front of the VCR
- Has a Memory Backup
- Costs no more than $300

According to the table on p. 135, which VCR fits the Human Resource Department's specifications?

A. Pioneer CLD-D605
B. Sony SLV-790HF
C. RCA VR-652HF
D. RCA VR-678HF
E. RCA VR-725HF

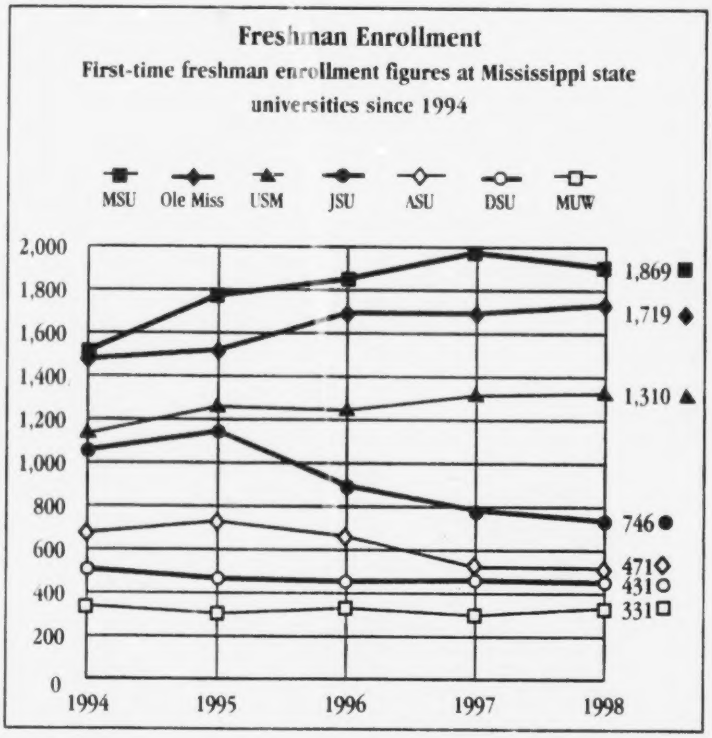
Laserdisc Players	2-Side Play	Jog/ Shuttle Functions	Variable Speed Play (CAV/CLV)	Still Frame (CAV/CLV)	AC-3 RF Output	S-video Output	Display Off Switch	Your Price
Pioneer CLD-S104			CAV discs	CAV discs				\$299^{99}
Pioneer CLD-D505	✔	Shuttle	CAV discs	CAV discs	✔	2	✔	CALL
Pioneer CLD-D605	✔	Both	CAV/CLV	CAV/CLV	✔	2	✔	CALL

VCRs	Format	HiFi & MTS	# of Video Heads	Flying Erase Head	VCR Plus+ with cable box control	Jog/Shuttle Functions	Front Panel A/V Inputs	Auto Channel Set	Timer Events/Weeks	Memory Backup	Remote Control	Your Price
JVC HR-J430	VHS HQ		4			Both	✔	✔	8/52	10 minute	multibrand	\$219^{99}
JVC HR-VP434	VHS HQ		4		✔	Both	✔	✔	8/52	10 minute	multibrand	\$249^{99}
JVC HR-J630	VHS HQ	✔	4			Both	✔	✔	8/52	10 minute	multibrand	\$269^{99}
JVC HR-VP634	VHS HQ	✔	4		✔	Both	✔	✔	8/52	10 minute	multibrand	\$299^{99}
JVC HR-VP638	VHS HQ	✔	4	✔	✔	Both	✔	✔	8/52	10 minute	multibrand	\$369^{99}
JVC HR-VP830	VHS HQ	✔	4	✔	✔	Both	✔	✔	8/52	10 minute	multibrand	\$499^{99}
RCA VR-605HF	VHS HQ	✔	4					✔	8/52		multibrand	\$199^{99}
RCA VR-652HF	VHS HQ	✔	4		VCR Plus+			✔	8/52	permanent	multibrand	\$299^{99}
RCA VR-678HF	VHS HQ	✔	4		✔	Shuttle	✔	✔	8/52	permanent	multibrand	\$349^{99}
RCA VR-725HF	Super VHS	✔	4	✔	✔	Both	✔	✔	8/52		multibrand	\$499^{99}
Sony SLV-660HF	VHS HQ	✔	4					✔	8/4	3 hour	multibrand	\$249^{99}
Sony SLV-690HF	VHS HQ	✔	4		VCR Plus+			✔	8/4	3 hour	multibrand	\$279^{99}
Sony SLV-780HF	VHS HQ	✔	4		VCR Plus+	Shuttle	✔	✔	8/4	3 hour	multibrand	\$299^{99}
Sony SLV-785HF	VHS HQ	✔	4		VCR Plus+	Shuttle	✔	✔	8/4	3 hour	multibrand	\$349^{99}
Sony SLV-790HF	VHS HQ	✔	4		✔	Shuttle	✔	✔	8/4	3 hour	multibrand	\$399^{99}
Sony SLV-960HF	VHS HQ	✔	4	✔	✔	Shuttle	✔	✔	8/4	3 hour	multibrand	\$499^{99}
Sony EV-C25	8mm	HiFi	2	✔				no tuner	no timer			\$359^{99}
Sony EV-C200	Hi8/8mm	HiFi	3	✔				no tuner	no timer		unified	\$649^{99}

Practice Problem 6.2

You live in Mississippi and need to select a college. You prefer a school with a small freshman enrollment. Which schools should you consider?

A. MUW and DSU
B. MSU and Ole Miss
C. MSU and MUW
D. USM and JSU
E. ASU and JSU



Which school has shown the most growth in freshman enrollment during the four-year period illustrated in the line graph?

A. MSU
B. Ole Miss
C. JSU
D. ASU
E. MUW

Which school has had the greatest decrease in freshman enrollment during the four-year period illustrated in the line graph?

A. MSU
B. JSU
C. DSU
D. MUW
E. MSU

Practice Problem 6.3

You are responsible for purchasing cereal boxes as they are needed for the New Cereal Company. Use the three tables that follow to answer the questions.

What is the last day that you can order Oat-e-Os boxes for May 22 cereal production?

A. Monday, May 15
B. Tuesday, May 16
C. Wednesday, May 17
D. Thursday, May 18
E. Friday, May 19

To meet projected production, for which cereal will you order the most boxes?

A. Crackle Crispies
B. Animal Crunchies
C. Oat-e-Os
D. Cocoa Crunchies

Cereal Boxes in Inventory on 5/15	
Crackle Crispies	20,000
Animal Crunchies	12,400
Oat-e-Os	12,680
Cocoa Crunchies	40,400

Production for the Week of 5/22

	Monday 5/22	Tuesday 5/23	Wednesday 5/24	Thursday 5/25	Friday 5/26	Saturday 5/27	Sunday 5/28	Total Expected to Produce
Crackle Crispies	2,200	2,200	2,200	2,200	2,200	2,200	2,200	15,400
Animal Crunchies	2,000	2,100	2,400	2,400	1,800	—	—	10,700
Oat-e-Os	2,200	2,200	2,200	2,200	1,600	—	—	10,400
Cocoa Crunchies	4,400	4,400	4,400	4,400	4,400	4,400	4,400	21,400

Ordering Schedule for Cereal Boxes

Product	Point of Origin of Boxes	Shipping Days	Transit Time (Business Days)	Arrival Time
Crackle Crispies	Atlanta, GA	Every Tuesday	2	2:00 p.m.
Animal Crunchies	St. Louis, MO	Every Monday	1	noon
Oat-e-Os	Orlando, FL	Every Monday & Wednesday	3	4:30 p.m.
Cocoa Crunchies	Puma, CA	Every Thursday	3	3:30 p.m.

Practice Problem 6.4

You have been asked to glue together a metal machine component that shattered. You think one or two tiny slivers may be missing. In addition, because of its irregular shape, you won't be able to use a clamp to hold the component together while it dries.

Based on the information provided in the chart, make a judgement about which glue would be the best to use for your task?

A. Welbond Universal Space Age Adhesive
B. Super Glue Plasti-Fuse
C. Devcon Super-Glue II Brushable Formula
D. Devcon Titanium-5 Epoxy
E. Elmer's Glue-All

Explain your decision and the criteria you used to make it.

Which glue would be best for joining the four sides and bottom of an aquarium?

A. 3M Super Strength Adhesive
B. Loctite Wood Worx
C. PC-7 Epoxy Paste
D. Devcon 2-Ton Epoxy
E. Krazy Glue Extra Strength Gel

Explain your decision and the criteria you used to make it.

Overall Ratings *Within types, listed in order of strength*

Product	Price	Package	Strength			Water resistance		Filling gaps	Setting time	Color
			Wood	Metal	Plastic	Damp	Soaked			
PLASTIC CEMENTS										
Duco Cement	$1.25	1-fl.-oz. tube	○	◒	⊙	○	●	◒	5 min.	Clear
Elmer's Clear Household Cement	1.40	1-oz. tube	◓	⊙	◓	◒	●	○	—	Clear
3M Super Strength Adhesive	4.00	1-oz. tube	○	⊙	⊙	◒	●	○	—	Clear
Beacon Multi-Grip	6.00	4-oz. bottle	○	◒	◒	●	●	◒	"Quick dry"	Clear
Seal-All All-Purpose Adhesive	2.00	2-fl.-oz. tube	◒	◒	⊙	●	●	○	5 to 10 min.	Clear
Duro Household Cement	2.00	1.5-fl.-oz. tube	⊙	⊙	⊙	◒	●	○	—	Clear
Goop Household Adhesive & Sealant	4.30	3.7-fl.-oz. tube	◒	◒	◒	◒	○	◓	2 to 10 min.	Clear
EMULSION WOOD GLUES										
Ross All Purpose White Glue	0.90	5-fl.-oz. bottle	⊙	—	—	●	—	◒	—	White
Dap Weldwood Carpenter's Glue (yellow)	1.50	4-oz. bottle	⊙	—	—	◒	—	◓	30 min.	Yellow
Elmer's Probond Wood White Glue (exterior)	4.70	12-fl.-oz. bottle	⊙	—	—	◒	—	◒	1 hr.	Tan
Titebond II Premium Wood Glue (yellow)	3.70	8-fl.-oz. bottle	⊙	—	—	◒	—	◒	1 hr.	Tan
Elmer's Glue-All (white)	1.40	4-oz. bottle	◓	—	—	●	—	◓	30 to 45 min.	White
Weldbond Universal Space Age Adhesive (white)	3.00	4-oz. bottle	◓	—	—	●	—	◓	1 hr	Clear
Loctite Wood Worx (yellow)	2.30	1.95-fl.-oz. tube	◓	—	—	◒	—	◓	7 min.	Yellow
Elmer's Carpenter's Wood Glue (yellow)	1.90	4-oz. bottle	◓	—	—	◒	—	◓	30 min.	Yellow
Elmer's Probond Wood White Glue (interior)	4.10	12-fl.-oz. bottle	◓	—	—	●	—	○	10 to 25 min.	Tan
Titebond Home/School White Glue	1.40	4-fl.-oz. bottle	◓	—	—	●	—	◒	—	White
POLYMERIZING GLUES										
Devcon Plastic Steel (epoxy)	3.00	25-ml. syringe	◓	⊙	◓	◓	—	⊙	2 hr.	Black
Gorilla Glue (polyurethane)	17.80	8-fl.-oz. bottle	◓	◓	⊙	⊙	⊙	⊙	20 min	Tan
Elmer's Probond Polyurethane Glue	8.20	8-fl.-oz. bottle	◓	◓	⊙	⊙	⊙	⊙	15 min	Tan
PC-7 Epoxy Paste	4.95	two 2-oz. canisters	○	◓	◒	◒	—	⊙	1 hr	Dark gray
Elmer's Probond Super-Fast Epoxy Cement	2.30	two 1-oz. syringes	◓	○	◒	○	●	⊙	5 to 10 min.	Clear yellow
PC-11 White Epoxy Paste	4.30	two 2-oz. canisters	○	○	◒	○	—	⊙	1 hr.	White
Loctite Poxy Pouches	3.30	four 16-g. pouches	◓	○	◒	○	○	⊙	5 min.	Clear
Devcon Titanium-5 (epoxy)	3.00	25-ml. syringe	○	◓	◒	○	—	⊙	5 min.	Gray
Devcon Epox-It Paste Epoxy Wood Adhesive	3.00	25-ml. syringe	◓	◒	◒	○	—	⊙	30 min.	Tan
Duro Master Mend Extra Strength Quick Set Epoxy	2.50	1-oz. syringe	○	◒	◒	◒	◒	⊙	4 to 6 min.	Clear
Devcon 5-Minute Thick Gel Epoxy	3.00	25-ml. syringe	○	○	◒	○	○	⊙	5 min.	Translucent white
Power Poxy Clear Gel (epoxy)	3.00	1-oz. blister pack	○	◒	◒	○	●	⊙	15 min.	Clear blue
Devcon 2-Ton Epoxy	2.25	two 1-oz. syringes	○	◒	◒	○	●	⊙	30 min.	Clear
Epoxybond Fast Glue	3.35	two 0.75-oz. tubes	○	◒	◒	◓	◒	⊙	5 min.	Translucent white
Epoxybond Household Repair Epoxy Putty	2.75	2.5-oz. bar	◒	○	◒	⊙	—	⊙	1½ hr.	Cream
CYANOACRYLATES										
Krazy Glue Instant Wood Formula	1.70	0.07-oz. vial	◓	⊙	⊙	○	●	—	30 sec.	Clear
Super Glue Future Glue High Performance	2.10	two 0.14-oz. tubes	◓	⊙	⊙	○	●	—	15 sec.	Clear
Krazy Glue Instant (precision applicator)	2.70	0.18-oz. bottle	○	⊙	◓	○	●	—	30 sec.	Clear
Dap Super Glue	0.85	2-g. tube	◒	⊙	⊙	○	●	—	10 sec	Clear
Devcon Super-Glue II Brushable Formula	2.00	3-g. bottle	◓	◓	◓	◒	●	—	10 to 30 sec.	Clear
Super Glue Plasti-Fuse	2.80	0.07-oz. tube & primer	○	◓	⊙	●	●	○	20 sec.	White
Quicktite Super Glue	2.60	5-g. bottle	○	◓	⊙	○	●	—	30 sec.	Clear
Loctite Brush-On Instant Wood Glue	3.30	0.18-oz. bottle	◓	○	⊙	○	●	—	15 to 60 sec.	Clear
Krazy Glue Extra Strength Gel	2.00	0.07-oz. tube	◒	◓	⊙	●	●	◓	—	Clear
3M Super Glue Gel	3.00	two 0.10-oz. tubes	◒	◓	⊙	◓	●	◓	60 sec.	Clear
Krazy Glue	1.70	0.07-oz. vial	◒	◓	⊙	○	●	—	—	Clear
Loctite Plastix	3.30	0.16-oz. tube	◒	◓	○	○	●	—	30 sec.	Clear
Duro Quick Gel No-Run Super Glue	1.30	2-g. tube	⊙	○	⊙	⊙	●	◓	30 sec.	Clear

⊙ Excellent ◓ Very good ○ Good ◒ Fair ● Poor

Practice Problem 6.5

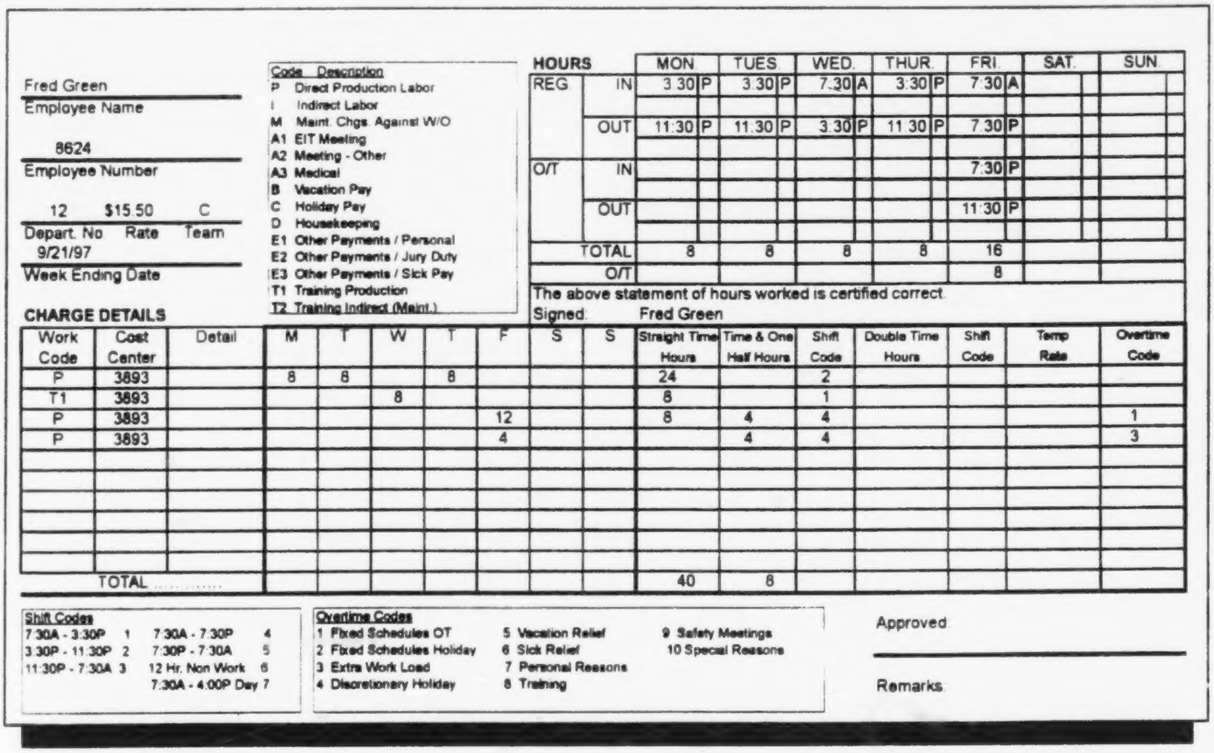
Use the time sheet below to answer the following questions.

What did Fred do on Wednesday?

A. Holiday
B. Production
C. Production training
D. Vacation
E. Safety meeting

Why did Fred work an extra four hours on Friday?

A. Fixed schedules overtime
B. Housekeeping
C. Extra work load
D. Safety meeting
E. Discretionary holiday



Fred Green
Employee Name

8624
Employee Number

12 $15.50 C
Depart. No Rate Team

9/21/97
Week Ending Date

Code	Description
P	Direct Production Labor
I	Indirect Labor
M	Maint. Chgs. Against W/O
A1	EIT Meeting
A2	Meeting - Other
A3	Medical
B	Vacation Pay
C	Holiday Pay
D	Housekeeping
E1	Other Payments / Personal
E2	Other Payments / Jury Duty
E3	Other Payments / Sick Pay
T1	Training Production
T2	Training Indirect (Maint.)

HOURS		MON		TUES.		WED.		THUR.		FRI.		SAT.		SUN.	
REG	IN	3:30	P	3:30	P	7:30	A	3:30	P	7:30	A				
	OUT	11:30	P	11:30	P	3:30	P	11:30	P	7:30	P				
O/T	IN									7:30	P				
	OUT									11:30	P				
	TOTAL	8		8		8		8		16					
	O/T									8					

The above statement of hours worked is certified correct.
Signed: Fred Green

CHARGE DETAILS

Work Code	Cost Center	Detail	M	T	W	T	F	S	S	Straight Time Hours	Time & One Half Hours	Shift Code	Double Time Hours	Shift Code	Temp Rate	Overtime Code
P	3893		8	8		8				24		2				
T1	3893				8					8		1				
P	3893						12			8	4	4				1
P	3893						4				4	4				3
TOTAL										40	8					

Shift Codes

7:30A - 3:30P	1	7:30A - 7:30P	4
3:30P - 11:30P	2	7:30P - 7:30A	5
11:30P - 7:30A	3	12 Hr. Non Work	6
		7:30A - 4:00P Day	7

Overtime Codes

1 Fixed Schedules OT
2 Fixed Schedules Holiday
3 Extra Work Load
4 Discretionary Holiday
5 Vacation Relief
6 Sick Relief
7 Personal Reasons
8 Training
9 Safety Meetings
10 Special Reasons

Approved:

Remarks:

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Practice Problem 6.6

The following table illustrates a manufacturing plant's production-related activities. It also includes the metrics. Metrics are the goals or criteria that measure a team's success.

Which teams will receive a 10% bonus this quarter?
  A. Assembling, Receiving
  B. Blending, Shipping
  C. Blending, Receiving, Shipping
  D. Receiving, Shipping, Packaging
  E. Packaging, Shipping

Which team was closest to getting a 15% bonus?
  A. Blending
  B. Packaging
  C. Receiving
  D. Shipping
  E. Assembling

Use your judgement to determine which team will have the hardest time making next quarter's 15% bonus?
  A. Assembly
  B. Blending
  C. Packaging
  D. Shipping
  E. Receiving

Quarterly Production Metrics

	Uptime		Yield		Quality Incidents		Safety Incidents		Environmental Incidents	
	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual	Goal	Actual
Receiving	85	87	99	99	<2	1	<5	7	<1	0
Blending	87	88	97	96	<3	1	<8	5	<3	1
Assembling	91	93	92	85	<5	3	<15	12	<5	6
Packaging	90	89	96	96	<3	3	<7	8	<4	2
Shipping	92	95	99	100	<3	4	<6	4	<2	1

Metrics Met	Quarterly Payout
5	15 % bonus
4	10 % bonus
3	5 % bonus
2	No bonus

Practice Problem 6.7

You are responsible for ordering supplies for your plant's maintenance department. You are considering a variety of lighting options. Based on the information provided in the following table, which type of lamp is the most energy efficient?

A. Fluorescent
B. Metal halide
C. Low pressure sodium
D. High pressure sodium

Note: Watts measure the energy used. Lumens measure the amount of light produced.

Characteristics of Lighting Lamp Types

Lamp	Watts	Initial Lumens	Life*
High Pressure Sodium	100	9,400	22,000
	150	16,400	22,000
	250	24,000-29,000	22,000
	400	50,000	22,000
	1,000	141,000	22,000
Mercury	110	3,750-4,100	22,000
	110	6,400-8,000	22,000
	170	9,350-12,000	22,000
	225	20,000-22,750	22,000
	350		
	1,000	56,000-62,000	22,000
Low Pressure Sodium	25	4,750	17,000
	50	7,900	17,000
	175	32,000	17,000
Incandescent	145	2,200-2,600	575-1,475
	475	10,900	1,900
	1,000	21,000	900
	1,150	27,000	1,900
	1,450	32,000-34,500	900-1,900
Flourescent	75	4,650	11,000
	65	4,200	11,000
	100	6,975-9,000	11,000
	200	14,000-16,975	11,000
Metal Halide	375	31,000	19,975
	900	94,000-97,000	11,000
	1,475	144,000	2,975

* Lifetime measured with 10 hours usage per start.

Practice Problem 6.8

You are conducting a study to determine how driving laws affect automobile safety. One law includes the use of graduated drivers licenses (e.g., learners permits, intermediate licenses). Use the graph and table to answer the following questions.

Do graduated licenses reduce traffic accidents?

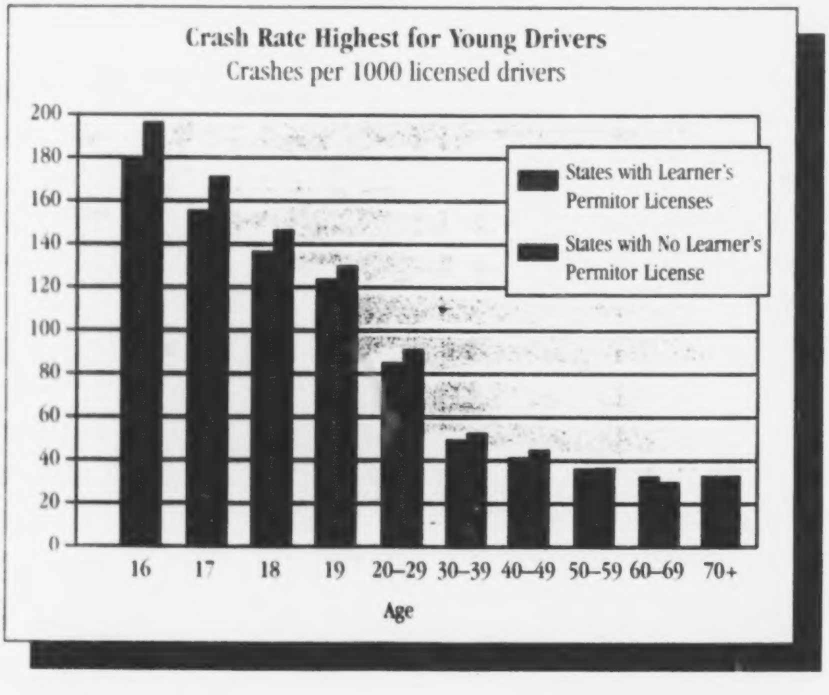
A. Yes
B. No
C. Can't tell from the data

Do graduated licenses affect the chances of having an accident for drivers over 30 years old?

A. Yes
B. No
C. Can't tell from the data

Do tougher drunk driving laws reduce accidents?

A. Yes
B. No
C. Can't tell from the data



Limits on Teenage Drivers by State

State	Learner's Permit Required	Intermediate License Required	No Driving at Night	Parental Supervision of Driving	Driver's Education	Training After Accident	Tougher Drunken Driving Limits	Must Wear Seat Belts
California	X	X		X	X		X	X
Colorado	X	X			X			X
Florida	X	X	X				X	
Georgia	X	X	X				X	X
Idaho			X		X		X	X
Illinois	X		X		X		X	X
Kentucky	X	X	X	X	X	X	X	X
Louisiana			X		X		X	X
Maryland	X	X	X		X		X	X
Massachusetts	X	X	X		X	X	X	X
Michigan	X	X	X	X	X	X	X	X
N. Carolina	X	X	X	X	X		X	X
New Jersey	X		X		X	X	X	X
New York	X	X	X		X	X		X
Oregon		X				X	X	X
Pennsylvania	X	X	X		X			X
S. Carolina	X		X		X			X
S. Dakota			X					X
Vermont	X	X			X	X	X	X
W. Virginia	X	X			X	X	X	X
Wisconsin	X	X			X	X	X	X

Practice Problem 6.8

You are going to buy one of the used cars described below. You want a car with the lowest repair costs over the next three years. Using the information in the line graphs provided, which of these used cars should you buy?

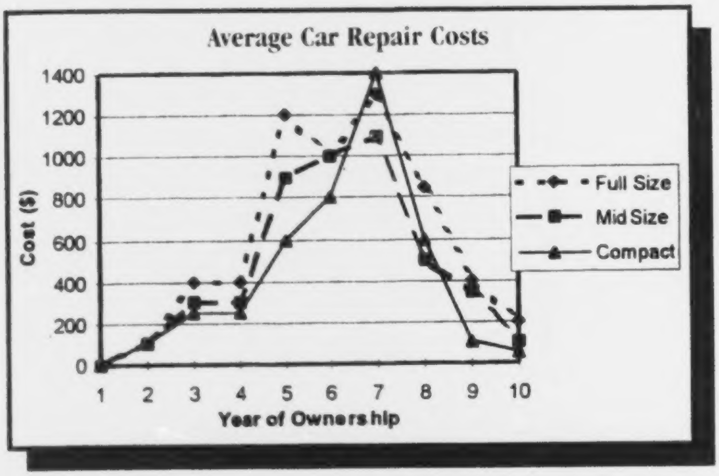
Note: Depreciation is how much less a car is worth after it has been owned for awhile.

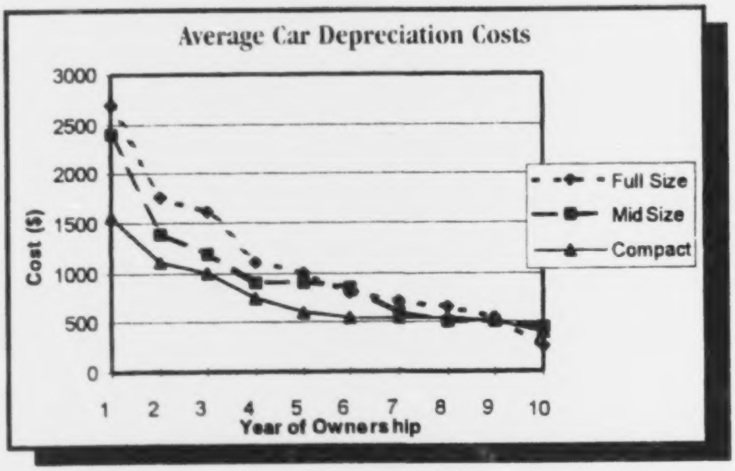
Zinger	**Thunder**	**Miranda**	**Racer III**
Compact	Midsize	Full size	Compact
5 years old	5 years old	3 years old	3 years old

A. Zinger
B. Thunder
C. Miranda
D. Racer III

You have two full-size cars, but need to sell one. The cars are 6 and 8 years old. You want to keep the car that is past its year of highest cost. Using the information in the line graphs provided, which car should you keep?

A. Keep the 6-year-old car
B. Keep the 8-year-old car
C. Keep both cars
D. Keep neither car


Average Car Repair Costs
Cost ($)
1400
1200
1000
800
600
400
200
0
1
2
3
4
5
6
7
8
9
10
Year of Ownership
Full Size
Mid Size
Compact


Average Car Depreciation Costs
Cost ($)
3000
2500
2000
1500
1000
500
0
1
2
3
4
5
6
7
8
9
10
Year of Ownership
Full Size
Mid Size
Compact

Practice Problem 6.10

You need to order picture frames for paintings that were donated to your company. Use the diagrams and charts on pp. 147–149 to answer the following questions.

You need a picture frame that has a flat (not curved) surface and holds a large oil painting that is 1/2-inch thick. (Example: Profile 67 is flat and profile 87 is curved.) Which profile meets these specifications?

A. Profile 37
B. Profile 43
C. Profile 44
D. Profile 68
E. Profile 92

Picture frame material is sold in full lengths or chops. (Chops are frame pieces that are custom cut to the customer's measurements.) Which is more expensive?

A. Lengths are more expensive than chops.
B. Chops are more expensive than lengths.
C. There is no price difference for lengths and chops.

You want a black frame made from Profile 67. What color options are available in that profile?

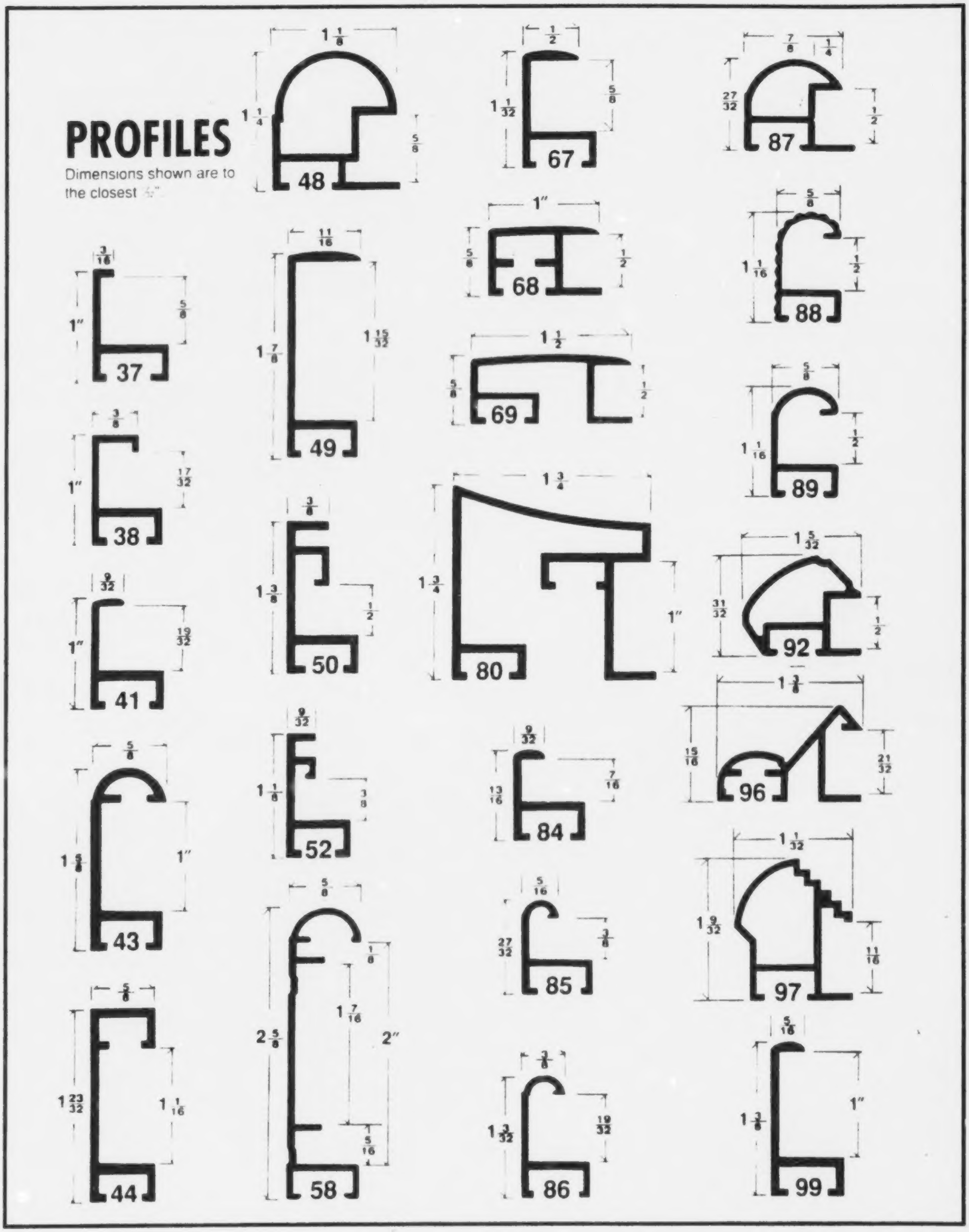
A. Satin black
B. Brite black
C. Jet black
D. Raven black
E. Black marble

What is the total cost of a custom cut black frame in Profile 67 that is 100 linear feet (two sides, a top, and a bottom frame piece total 100 feet)?

A. $1.31
B. $2.09
C. $2.81
D. $18.00
E. $28.10

PROFILES

Dimensions shown are to the closest 1/32"



48
1 1/8
1 1/4
5/8
67
1/2
1 1/32
5/8
87
7/8
1/4
27/32
1/2
37
3/16
1"
5/8
49
11/16
1 7/8
1 15/32
68
1"
5/8
1/2
88
5/8
1 1/16
1/2
69
1 1/2
5/8
1/2
89
5/8
1 1/16
1/2
38
3/8
1"
17/32
50
3/8
1 3/8
1/2
80
1 3/4
1 3/4
1"
92
1 5/32
31/32
1/2
41
9/32
1"
19/32
52
9/32
1 1/8
3/8
84
9/32
13/16
7/16
96
1 3/8
15/16
21/32
43
5/8
1 5/8
1"
58
5/8
2 5/8
1/8
1 7/16
2"
5/16
85
5/16
27/32
3/8
97
1 1/32
1 9/32
11/16
44
5/8
1 23/32
1 1/16
86
3/8
1 3/32
19/32
99
5/16
1 3/8
1"

AVAILABILITY CHART

Anodized Finishes

Order by Profile #, then Color #.

COLORS/PROFILES	37	38	41	43	44	48	49	50	52	58	67	68	69	80	84	85	86	87	88	89	96	97	99	COLOR
7 Kryptonite																				●				7
8 Frosted Kryptonite																				●	●	●		8
9 Cinnamon																				●				9
10 Frosted Cinnamon																				●	●	●		10
11 Silver	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	11
12 Frosted Silver			●	●		●									●	●	●	●					●	12
13 Gold	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	13
14 Frosted Gold		●	●	●		●				●					●	●	●	●				●		14
15 Copper				●		●									●	●	●							15
16 Frosted Copper						●									●	●	●							16
17 Gray Pewter			●	●		●									●	●	●	●						17
18 Blue Pewter				●		●									●	●	●						●	18
19 Fr Blue Pewter				●		●									●	●	●					●		19
20 Gun Metal		●	●	●		●			●	●		●	●	●	●	●	●	●		●			●	20
21 Light Bronze				●		●		●							●	●	●	●		●				21
22 Dark Bronze				●		●			●	●		●		●	●	●	●	●					●	22
23 Old World Pewter			●	●		●	●			●				●	●	●	●	●	●	●			●	23
25 Satin Black	●	●	●	●		●	●		●						●	●	●				●		●	25
26 Brite Black				●		●				●	●	●	●		●	●	●	●		●			●	26
27 Heather															●	●	●							27
28 Light Gold				●		●									●	●	●	●			●			28
29 New Pewter																●	●							29

Artel*

SatinColors

COLORS/PROFILES	49	84	85	86	99
30 Raven Black		●	●	●	
31 Snowflake White	●	●	●	●	●
32 Sable Brown			●		
33 Chinese Red		●	●	●	
34 Dover Gray			●		
35 Tampico Brown			●		
36 Tartan Green			●		
37 Newport Blue		●	●	●	
38 Redwood			●		
39 Russet			●		
40 Kentucky Rose			●		
41 Mountain Mist			●		
42 Sea Foam Green			●		
43 Sand Dune Beige			●		
44 Harbor Bay Blue		●	●	●	

Designer-Plus™

2-ToneColors

COLORS/PROFILE	92
1311 Gold/Silver	●
2611 Brite Black/Silver	●
10013 Jet Black/Gold	●
10213 Glacier White/Gold	●
10513 Slate Blue/Gold	●
10813 Dusty Mauve/Gold	●

Designer-Plus™ is a 2-tone finish: First color is polished, second color is brushed.

Artel*

GlossColors

COLORS/PROFILES	43	48	58	85	86	87	88	89
100 Jet Black				●	●	●	●	
101 Cardinal Red				●	●	●		
102 Glacier White	●	●	●	●	●	●	●	●
103 Midnight Blue				●	●	●		
104 Seal Gray				●	●	●	●	
105 Slate Blue				●	●	●	●	
106 Salmon				●	●	●		
107 Desert Rose				●	●	●	●	
108 Dusty Mauve				●	●	●		
109 Wine				●	●	●		
110 Misty Teal				●	●	●		
111 Almond				●	●	●		
112 Taupe				●				
113 Cocoa				●				
114 Light Jonquil				●				
115 Evergreen				●	●			
116 Crimson				●	●			
117 Gray Violet				●	●			
118 French Lilac				●	●			
119 Jade				●	●			
120 French Blue				●				
121 Marine Blue				●	●			
122 Sea Gull				●	●			
123 Photo Grey				●	●			

● AVAILABLE IN 10 FT LENGTHS
12 FT LENGTHS PROFILES #88 – #97

* Registered Trademark of Cardinal Aluminum Company

Artel*

GeoColors

COLORS/PROFILES	89	96
200 Black Marble	●	●
201 Alabaster	●	●
202 Red Onyx	●	●
203 Ocean Onyx	●	●
204 Deep Blue Onyx	●	●
205 Regal Onyx	●	●
206 Bordeaux Onyx	●	
207 Corona	●	●
209 Rose Granite	●	●
210 Gray Granite	●	●
211 Sandstone	●	●
212 Desert Storm	●	●
213 Lilactic	●	
214 Blue Lazurite	●	●

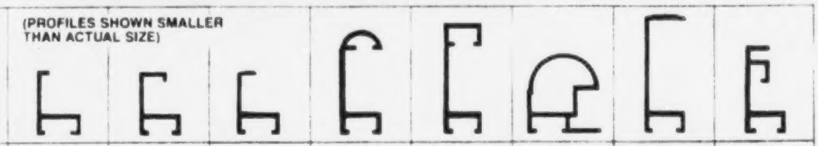
CHOP AND LENGTH MOULDING PRICES

(CHOP PRICES ARE SHADED)

(PROFILES SHOWN SMALLER THAN ACTUAL SIZE)

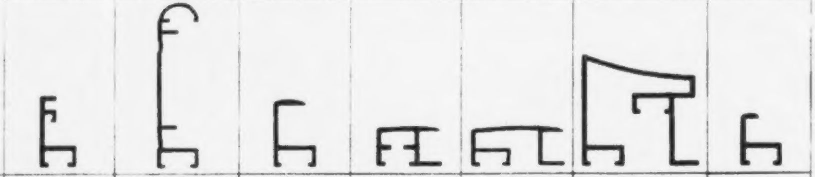
10 FOOT LENGTHS

PRICE PER FOOT (SUGGESTED)



COLORS/PROFILES		37	38	41	43*	44*	48*	49*	50
SILVER NO. 11 & 12 ANODIZED	LENGTH	1.00	1.24	1.03	1.78	1.69	2.47	1.98	1.59
	CHOP	1.60	1.97	1.64	2.83	2.66	3.93	3.14	2.52
GOLD NO. 13, 14 & 28 ANODIZED	LENGTH	1.11	1.35	1.13	1.85	1.77	2.72	2.04	1.69
	CHOP	1.74	2.12	1.78	2.90	2.77	4.27	3.20	2.66
OTHER NO. 7-10, 15-23, 27 & 29 ANODIZED	LENGTH	—	1.41	1.21	1.96	—	2.89	2.15	1.90
	CHOP	—	2.21	1.89	3.08	—	4.54	3.38	2.98
BLACK NO. 25 & 26 ANODIZED	LENGTH	1.14	1.45	1.27	2.10	—	2.99	2.35	—
	CHOP	1.78	2.26	1.98	3.28	—	4.66	3.67	—
ARTEL® NO. 30-123 COLOR COATINGS	LENGTH	—	—	—	1.49	—	2.17	1.76	—
	CHOP	—	—	—	2.38	—	3.43	2.76	—

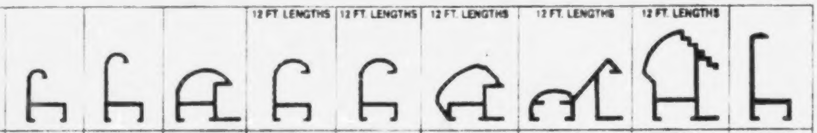
10 FOOT LENGTHS



COLORS/PROFILES		52	58	67*	68	69	80*	84
SILVER NO. 11 & 12 ANODIZED	LENGTH	1.27	2.51	1.31	1.70	2.36	4.08	.87
	CHOP	2.02	3.99	2.09	2.70	3.75	6.40	1.39
GOLD NO. 13, 14 & 28 ANODIZED	LENGTH	1.40	2.62	1.36	1.78	2.45	4.26	.96
	CHOP	2.20	4.12	2.14	2.79	3.85	6.68	1.60
OTHER NO. 7-10, 15-23, 27 & 29 ANODIZED	LENGTH	1.48	2.84	—	1.96	2.71	4.46	1.06
	CHOP	2.32	4.46	—	3.06	4.25	6.99	1.68
BLACK NO. 25 & 26 ANODIZED	LENGTH	1.56	3.28	1.80	2.35	3.24	—	1.11
	CHOP	2.43	5.11	2.81	3.67	5.05	—	1.74
ARTEL® NO. 30-123 COLOR COATINGS	LENGTH	—	2.49	—	—	—	—	.96
	CHOP	—	3.90	—	—	—	—	1.50

10 FOOT LENGTHS

12 FOOT LENGTHS PROFILES #88 - #97



					12 FT. LENGTHS	12 FT. LENGTHS	12 FT. LENGTHS	12 FT. LENGTHS	12 FT. LENGTHS	
COLORS/PROFILES		85	86	87	88	89	92	96*	97*	99*
SILVER NO. 11 & 12 ANODIZED	LENGTH	.77	1.03	1.78	1.23	1.10	—	—	—	1.12
	CHOP	1.22	1.64	2.82	1.96	1.75	—	—	—	1.76
GOLD NO. 13, 14 & 28 ANODIZED	LENGTH	.86	1.12	1.89	1.29	1.20	—	2.06	2.52	1.24
	CHOP	1.36	1.77	2.97	2.03	1.88	—	3.24	3.96	1.94
OTHER NO. 7-10, 15-23, 27 & 29 ANODIZED	LENGTH	.96	1.19	2.01	1.31	1.28	—	2.29	2.52	1.39
	CHOP	1.50	1.86	3.15	2.06	2.01	—	3.60	3.96	2.18
BLACK NO. 25 & 26 ANODIZED	LENGTH	.99	1.29	2.13	—	1.36	—	2.34	—	1.46
	CHOP	1.54	2.01	3.32	—	2.13	—	3.65	—	2.27
DESIGNER PLUS 1311 10013 10513 2611 10213 10813 2 TONE FINISH	LENGTH	—	—	—	—	—	2.80	—	—	—
	CHOP	—	—	—	—	—	4.39	—	—	—
ARTEL® NO. 30-123 COLOR COATINGS	LENGTH	.89	1.10	1.55	1.14	1.14	—	—	—	1.22
	CHOP	1.41	1.74	2.44	1.80	1.80	—	—	—	1.91
ARTEL® GEO COLORS 200-214	LENGTH	—	—	—	—	1.26	—	2.06	—	—
	CHOP	—	—	—	—	1.99	—	3.24	—	—

*Profiles can be used as Designer Mates® with profiles #68 or #69 as liners.

Practice Problem 6.11

You are a member of Northwest Airlines' World Perks frequent flyer program. You have 220,000 banked miles.

You and your friend would like to travel from New York to Paris during the Christmas holidays in December 2000. If you depart on December 20 and return on December 30, how many miles will your account be charged? Note: You plan to travel Coach Class.

A. 40,000 miles
B. 80,000 miles
C. 100,000 miles
D. 140,000 miles
E. 200,000 miles

If you and your friend were to upgrade to Business Class (which is the next higher class from Coach Class) for your roundtrip travel, how many miles will your account be charged?

A. 5,000 miles each
B. 7,500 miles each
C. 10,000 miles each
D. 15,000 miles each
E. 20,000 miles each

Do you have enough miles to upgrade to Business Class?

A. Yes
B. No

Award Chart Key

Standard: Subject to blackout dates and capacity controls. Continental U.S./Canada award – Saturday-night stay is required.*

RuleBuster waives blackout dates, most capacity controls & Saturday night stay**

Colors correspond with regions below

WorldPerks Award Chart

		Free Roundtrip Ticket				One-Way, One-Class Upgrade	
		Coach Class	World Business Class	First Class or Business First	Blackout Dates (Apply to Standard awards only)	From Coach Full Fare	From most Coach Fares or from Business Class Fares
WITHIN CONTINENTAL U.S. (INCLUDES ALASKA) OR BETWEEN CONTINENTAL U.S. AND CANADA	OFF-PEAK Sep-May	20,000 40,000	— —	40,000 80,000	1999: Jan 2-4, Jul 2, Nov 24, 28-29, Dec 18-19, 22-23, 26, 30 2000: Jan 2-3, Apr 30, Jun 30, Nov 22, 26-27, Dec 22-24, 29-30	5,000	10,000
	PEAK Jun-Aug	25,000 50,000	— —	45,000 90,000			
BETWEEN CONTINENTAL U.S. (INCLUDES ALASKA), CANADA AND THE CARIBBEAN, CENTRAL AMERICA, MEXICO	YEAR-ROUND Jan-Dec	35,000 70,000	— —	60,000 120,000	1999: Jan 2-4, Jul 2, Nov 24, 28-29, Dec 18-19, 22-23, 26, 30 2000: Jan 2-3, Apr 30, Jun 30, Nov 22, 26-27, Dec 22-24, 29-30	7,500	15,000
BETWEEN NORTH AMERICA***, CENTRAL AMERICA AND HONOLULU	YEAR-ROUND Jan-Dec	35,000 70,000	— —	60,000 120,000	1999: Jan 2-4, Jul 2, Nov 24, 28-29, Dec 18-19, 22-23, 26, 30 2000: Jan 2-3, Apr 30, Jun 30, Nov 22, 26-27, Dec 22-24, 29-30	7,500	17,500
BETWEEN NORTH AMERICA***, HONOLULU AND SOUTH AMERICA	YEAR-ROUND Jan-Dec	35,000 70,000	— —	70,000 140,000	1999: Jan 2-4, Jul 2, Nov 24, 28-29, Dec 18-19, 22-23, 26, 30 2000: Jan 2-3, Apr 30, Jun 30, Nov 22, 26-27, Dec 22-24, 29-30	10,000	20,000
BETWEEN/WITHIN CENTRAL AMERICA AND SOUTH AMERICA	YEAR-ROUND Jan-Dec	20,000 40,000	— —	40,000 80,000	1999: Jan 2-4, Jul 2, Nov 24, 28-29, Dec 18-19, 22-23, 26, 30 2000: Jan 2-3, Apr 30, Jun 30, Nov 22, 26-27, Dec 22-24, 29-30	5,000	7,500
BETWEEN NORTH AMERICA***, CENTRAL AMERICA AND EUROPE Honolulu to Europe – additional 20,000 miles required	OFF-PEAK Oct-May	40,000 100,000	80,000 160,000	100,000 200,000	1999: Coach Class: Jan 1-4, Fri-Sun in Jun-Aug, Dec 18-31; World Business Class/First Class: Fri-Sun in May-Jun, Sep-Oct 2000: Coach Class: Jan 1-5, Fri-Sun in Jun-Aug, Dec 15-31; World Business Class/First Class: Fri-Sun in May-Jun, Sep-Oct	10,000	20,000
	PEAK Jun-Sep	50,000 100,000	80,000 160,000	10,000 200,000			
BETWEEN NORTH AMERICA***, CENTRAL AMERICA AND Honolulu to India/Africa/Middle East – additional 20,000 miles required	OFF-PEAK Oct-May	80,000 140,000	120,000 200,000	— —	1999: Coach Class: Jan 1-4, Fri-Sun in Jun-Aug, Dec 18-31; World Business Class/First Class: Fri-Sun in May-Jun, Sep-Oct 2000: Coach Class: Jan 1-6, Fri-Sun in Jan, Jun-Aug, Nov-Dec; Dec 15-31; World Business Class/First Class: Fri-Sun in May-Jun, Sep-Oct	30,000	40,000
	PEAK Jun-Sep	90,000 140,000	120,000 200,000	— —			
BETWEEN NORTH AMERICA***, CENTRAL AMERICA AND ASIA PACIFIC/MICRONESIA	OFF-PEAK Jan 16-Mar 31, Nov 1-Dec 14	50,000 120,000	75,000 180,000	100,000 240,000	1999: Dec 26-31† 2000: Jan 1-6, Dec 26-31†	12,500	25,000
	PEAK Apr 1-Oct 31, Dec 15-Jan 15	60,000 120,000	90,000 180,000	120,000 240,000			
BETWEEN HONOLULU AND ASIA PACIFIC/MICRONESIA	OFF-PEAK Jan 15-Apr 14, May 15-Jul 14, Oct 15-Dec 14	35,000 120,000	50,000 180,000	70,000 240,000	1999: None† 2000: None†	10,000	20,000
	PEAK Dec 15-Jan 14, Apr 15-May 14, Jul 15-Oct 14	40,000 120,000	60,000 180,000	80,000 240,000			
WITHIN ASIA PACIFIC/MICRONESIA	OFF-PEAK Jan 15-Apr 14, May 15-Jul 14, Oct 15-Dec 14	20,000 80,000	30,000 120,000	40,000 160,000	1999: None† 2000: Dec 26-31†	5,000	10,000
	PEAK Dec 15-Jan 14, Apr 15-May 14, Jul 15-Oct 14	25,000 80,000	40,000 120,000	60,000 160,000			
BETWEEN ASIA PACIFIC/MICRONESIA, EUROPE AND SOUTH AMERICA	OFF-PEAK ASIA Jan 16-Mar 31, Nov 1-Dec 14 OFF-PEAK EUROPE Oct-May	70,000 50,000	140,000 80,000	140,000 120,000	*Between Asia and South America:* 1999: Jan 2-4, Jul 2, Nov 24, 28-29, Dec 18-19, 22-23, 26-31† 2000: Jan 1-6, Dec 26-31† *For blackout dates between Europe and South America, see below.*††	20,000	30,000
	PEAK ASIA Apr 1-Oct 31, Dec 15-Jan 15 PEAK EUROPE Jun-Sep	90,000 50,000	140,000 80,000	140,000 120,000			
BETWEEN ASIA PACIFIC/MICRONESIA AND EUROPE (KLM flights only. Ticket must be issued in Asia Pacific/Micronesia.)	YEAR-ROUND Jan-Dec	60,000 —	100,000 —	— —	1999: None† 2000: None†	20,000	30,000
BETWEEN ASIA PACIFIC/MICRONESIA AND (KLM flights only. Ticket must be issued in Asia Pacific/Micronesia.)	YEAR-ROUND Jan-Dec	100,000 [illegible]	140,000 —	— —	1999: None† 2000: None†	40,000	50,000

* To avoid this requirement, use RuleBuster award. Back-to-back ticketing is prohibited. **RuleBuster is available on all Northwest and Continental operated flights, plus KLM flights with a Northwest designator. ***North America: the continental U.S. (excluding Hawaii), Canada, the Caribbean and Mexico. † For travel to/from Manila, these blackout dates also apply: 1999: Dec 17-Dec 31; 2000: Jan 1-9, Dec 14-31. †† For blackout dates between Europe and South America: 1999: Coach Class: Jan 1-4, Fri-Sun in Jun-Aug, Nov 24, 28-29, Dec 18-31. World Business Class/First Class: Jan 2-4, Fri-Sun in May-Jun, Sep-Oct, Jul 2, Nov 24, 28-29, Dec 18-19, 22-23, 26-31. 2000: Coach Class: Jan 1-5, Apr 30, Jun 30, Fri-Sun in Jun-Aug, Nov 22, 26-27, Dec 15-31. World Business Class/First Class: Jan 2-3, Apr 30, Fri-Sun in May-Jun, Sep-Oct, Jun 30, Nov 22, 26-27, Dec 22-24, 29-30.

Practice Problem 6.12

You work in a parts department of a car repair company and need to order a Holley carburetor for a Ford F350 with a C6 automatic transmission. Note: Your company is located in Florida. Use the tables on pp. 152–153 to answer these questions.

What should the choke pulldown setting be?

A. 150°
B. 157°
C. 170°
D. 300°
E. 425°

What price will your business have to pay for the carburetor?

A. $145
B. $150
C. $250
D. $290
E. $300

1987 Holley Carburetors
Model 4180-C 4-Barrel

Carburetor Adjustment Specifications

Application	Accelerator Pump		Choke Pulldown Setting	Choke Unloader Setting	Auto Choke Setting[1]
	Lever	Stroke			
E5HE-9510-DD	018°	#2	170°	300°	Orange
E5HE-9510-ED	018°	#2	170°	300°	Orange
E5HE-9510-MB	018°	#1	170°	300°	Orange
E5HE-9510-MC	016°	#1	170°	300°	Orange
E5HE-9510-LB	016°	#1	170°	300°	Orange
E5HE-9510-LC	016°	#2	170°	300°	Orange
E5TE-9510-ZB	015°	#2	157°	425°	Orange
E6HE-9510-AC	015°	#2	157°	425°	Orange
E6HE-9510-GA	015°	#2	150°	300°	Natural

[1] Color of choke cap spacer used

HOLLEY CARBURETOR NO.

Application	Part No.
Ford Motor Co.	
5.8L	
Bronco, E150/250 & F150/250	[1] E5TE-9510-ZB
E250/350	[1] E6HE-9510-GA
F250 [2] & F350	
Man. Trans.	E6HE-9510-AC
Auto. Trans.	[1] E6HE-9510-GA
7.5L	
California	
E250/350	
Auto. Trans.	E5HE-9510-MB E5HE-9510-MC
F250/350	
Man. Trans.	E5HE-9510-LB E5HE-9510-LC
Auto. Trans.	E5HE-9510-MB E5HE-9510-MC
Federal & High Altitude	
E250/350	
Auto. Trans.	E5HE-9510-ED
F250/350	
Man. Trans.	E5HE-9510-DD
Auto. Trans.	E5HE-9510-ED

[1] – With C6 automatic transmission.
[2] – F250 models over 8500 Lbs. GVW.

1987 Holley Carburetors
Model 4180-C 4-Barrel

Carburetor Price Sheet

Part No.	Wholesale Price	Retail Price	Delivery Time
E5TE-9510-ZB	$122.50	250	5-7 days
E5HE-9510-ED	$145	290	5-7 days
E6HE-9510-MB	$201.50	400	10-14 days
E6HE-9510-GA	$150	300	10-14 days

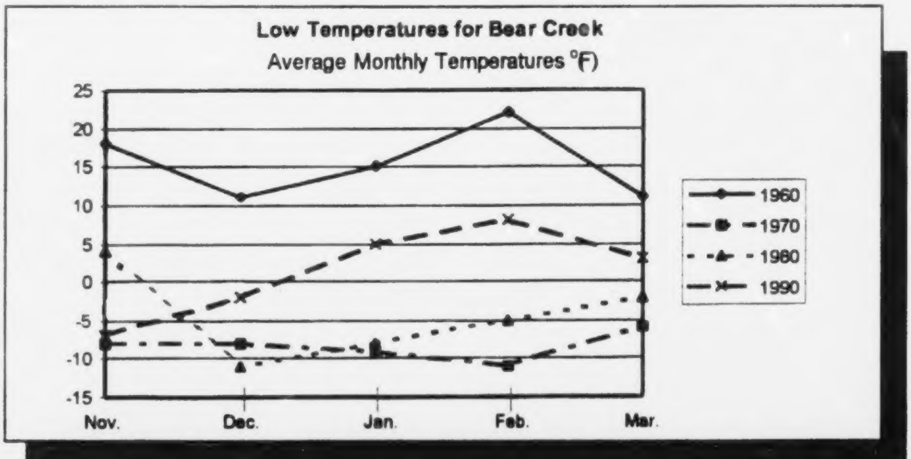
Practice Problem 6.13

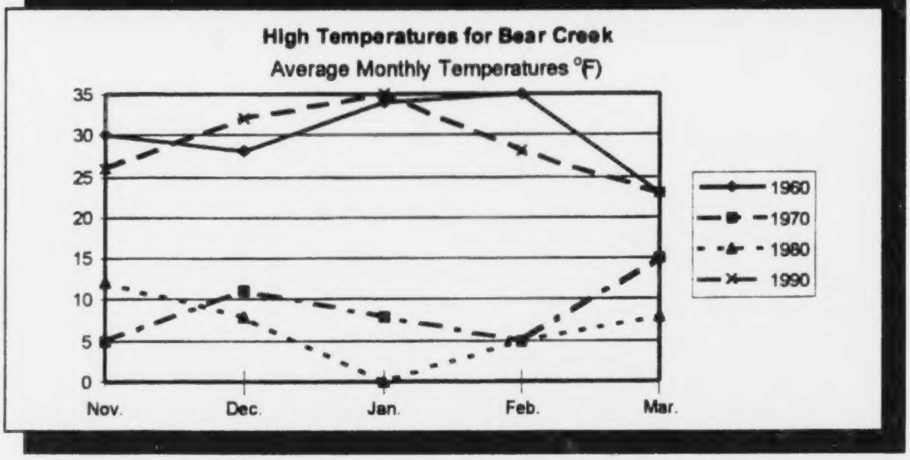
Use the line graphs below to determine what month your family should visit Bear Creek for a skiing vacation. Note: They want to avoid getting wet.

A. December
B. January
C. February
D. March
E. April

You are studying wildlife patterns in the Bear Creek area to determine why there was more wildlife in 1960 than in 1970. Your study has included factors such as temperatures, snowfall, hunting, and plant life. Which could **not** be concluded from the line graphs?

A. 1960 was milder than 1970.
B. Water remained frozen in 1960.
C. 1970 had a month with a record low temperature.
D. 1960 had less snowfall than 1970.





Practice Problem 6.14

It is your responsibility to know what chemicals can be mixed together safely. Use the charts below to answer the following questions.

What chemical interactions are likely between boric acid and formaldehyde?

A. Fire
B. Heat and polymerization
C. Heat and toxic gas
D. Heat
E. Unknown

You are trying to prepare a product containing an organic acid. You have several other ingredients you could mix with the organic acid. Which ingredient could you mix with an organic acid without danger?

A. Aldehydes
B. Amides
C. Amines
D. Caustics

RGN	Chemical Name
10	Acetone
10	Ammonium Hydroxide
1	Boric Acid
16	Benzene
6	Butyramide
7	Dimethyl Amine
5	Formaldehyde
3	Formic Acid
4	Methanol
16	Methyl Ethyl Ketone
7	Pentylamine
10	Sodium Hydroxide
16	Toluene

Legend

H	Heat Generation
F	Fire
G	Innocuous Gas
GT	Toxic Gas
GF	Flammable Gas
E	Explosion
P	Polymerization
S	Solubilization
U	Unknown

Chemical Compatibility Matrix

RGN											
1	Acids, Mineral, Non-oxidizing	1									
2	Acids, Mineral, Oxidizing	■	2								
3	Acids, Organic	■	GH	3							
4	Alcohols and Glycols	H	HF	HP	4						
5	Aldehydes	HP	HF	HP	■	5					
6	Amides	H	HGT	■	■	■	6				
7	Amines	H	HGT	H	■	H	■	7			
8	Azo, Diazos, and Hydrazines	HG	HGT	HG	HG	H	■	■	8		
9	Carbamates	HG	HGT	■	■	■	■	■	GH	9	
10	Caustics	H	H	H	■	H	■	■	■	HG	10
	RGN	1	2	3	4	5	6	7	8	9	10

Practice Problem 6.15

You are in charge of a carpet-dying operation. You are responsible for keeping dye in stock to meet the plant's production needs. You must order dye in time for it to be shipped to your plant.

The plant will run out of which color at the end of this week?

A. Brown
B. Gray
C. Green
D. Blue
E. Rust

You order dyes when you don't have enough in stock to make 10 rolls of carpet. Which dyes do you need to order at the end of the week?

A. Brown, green, rust
B. Brown, grey, rust
C. Blue, green, rust
D. Glue, gray, rust

It is the week of February 20. Which day would you need to order green dye to have it for production on Monday, February 27?

A. Monday
B. Tuesday
C. Wednesday
D. Thursday
E. Friday

Dye Inventory

Carpet Dyes	Lbs. on Hand 2/19	Lbs. required to make a roll
Brown	100	5
Gray	120	6
Green	160	8
Blue	120	8
Rust	100	10

Dye Shipment Times

Color Dye	Point of Origin for Dye	Shipment Time (7 days a week)
Brown	Atlanta	1 day
Gray	Miami	2 days
Green	Los Angeles	4 days
Blue	New York	2 days
Rust	Cincinnati	1 days

Production Week of 2/20 (Number of Rolls)

	Mon 2/20	Tues 2/21	Wed 2/22	Thurs 2/23	Fri 2/24	Sat 2/25	Sun 2/26
Brown	1	1	2	2	2	0	0
Gray	1	2	2	2	1	1	1
Green	2	2	1	1	1	2	2
Blue	2	1	2	2	2	0	0
Rust	2	2	2	1	1	1	1

Answers to Improving to Level 6 Practice Problems

6.1 D. JVC HR-VP638 is the only VCR that meets all of the criteria.

C. RCA-VR-652HF is the only VCR that meets all of the criteria.

6.2 A. MUW and DSU

A. MSU

B. JSU

6.3 A. Monday, May 15 (The boxes will arrive on Thursday at 4:30.)

C. Oat-e-Os

6.4 B. Super Glue Plasti-Fuse (The Devcon Titanium-5 Epoxy fills gaps better, but takes much longer to dry.) The chosen glue needs to meet three criteria: effectively glues metal, fills gaps, and dries quickly.

D. Devcon 2-Ton Epoxy. The chosen glue needs to meet the criteria of water resistance on glass.

6.5 C. Production training

C. Extra work load

6.6 C. Blending, Receiving, Shipping

A. Blending

A. Assembly

6.7 D. High pressure sodium

6.8 A. Yes

B. No

C. Can't tell from the data

6.9 D. Racer III

A. Keep the 6-year-old car; it is past year five, which is the year of highest cost.

6.10 D. Profile 68

B. Chops are more expensive than lengths.

B. Bright black (This is shown on the availability chart.)

E. $28.10 (Ten 10-foot chops will be needed to make a 100-linear-foot frame. Each 10-foot chop section costs $2.81.)

6.11 E. 200,000 miles (You will need to use the Rule Buster option to travel during blackout dates; each ticket will cost 100,000 miles.)

E. 20,000 miles each

B. No (You would need 240,000 miles to travel Business Class.)

6.12 A. 150° (Carburetor #E6HE-9510-GA is the part needed, as shown on the Carburetor Application table.)

B. $150 (This is the wholesale price charged to businesses.)

6.13 D. March

D. 1960 had less snowfall than 1970. (The graphics do not give information about snowfall.)

6.14 B. Heat and polymerization

B. Amides

6.15 E. Rust (Ten rolls will be produced this week. There is enough dye on hand to produce ten rolls.)

C. Blue, green, rust

D. Thursday (Four shipping days are needed.)

Insert the

“Appendix”

Divider Here

Appendix A

References

American College Testing Program (1995). *Targets for Instruction* (Locating Information). Iowa City, IA: ACT.

The Secretary's Commission on Achieving Necessary Skills (1992). *Learning a Living: A Blueprint for High Performance: A SCANS Report for America 2000.* Washington, DC: U.S. Department of Labor.

Thinking Media™ (1997). *Locating Information* from the KeyTrain™ CD-ROM Series. SAI International.

Appendix B

Locating Information Resources

Few books are devoted to the topic of locating information. However, instructors and learners can find **workplace graphics** to practice Locating Information skills in many places, including the following:

- Many of the books written for learners in academic and vocational programs include graphics.
- Workplace graphics can be provided by local businesses.
- Many Internet sites include appropriate forms, charts, graphs, and diagrams.

Instructors should remember to select graphics of *appropriate complexity* to meet the learners' needs: simple (Level 3), straightforward (Level 4), or complex (Levels 5 and 6).

Topic: Reading Charts, Graphs, Tables, and Maps

Mitchell, Robert and Donald Prickel (1991). *Number Power, Book Five: Graphs, Tables, Schedules, and Maps.* New York: Contemporary Books, Inc.

Mapmaker's Toolkit. This software, sold by Tom Snyder Productions, includes a map library of over 450 thematic (e.g., temperature, land use, population density, and vegetation) and historical maps. The software allows users to customize maps and print maps using single- or multiple-page formats. Available from Tom Snyder Productions at www.tomsnyder.com or 800/342-0236 for $79.95.

Topic: Reading and Completing Forms

Many books contain business forms, including those used in high-school and two-year college vocational programs. In addition, some books include CD-ROMs that contain business and tax forms. They can often be found in the business section at public libraries, too.

Work Keys-Related Resources

American College Testing Program (1995). *Targets for Instruction: Locating Information.* Iowa City, IA: ACT. This book provides a foundation for teaching learners Locating Information skills.

Thinking Media™ (1997). *Locating Information* from the KeyTrain™ CD-ROM Series. This CD-ROM is part of a series designed specifically for the Work Keys® system. The KeyTrain materials can be used by learners independently. They provide instruction about reading workplace graphics and include practice problems. Additional information can be found at www.keytrain.com.

Worldwide Interactive Network (1998). *Reading for Information* from the WIN Work Keys Instruction Solution Series. This self-directed student workbook is designed specifically to the level of proficiency required for each level of the Work Keys skill scale and includes skill enhancement activities, exercises, suggestions, and related information and resources. Additional information about the series can be found at www.W-WIN.com.

Work Keys related resources are distributed by The Ohio State University's Center on Education and Training for Employment. The sales office can be reached at 800/848-4815. In addition, the Center provides instruction and coaching that prepares users to effectively apply the *Targets for Learning* materials to their learning environments. For more information, contact their National Training Academy directly at 800/848-4815 or 614/292-8300.

Internet Sites

Instructors who are not familiar with finding web sites may wish to go to http://www.Dvorak.org/home.htm. This home page lists and provides click-on links to many web sites in a variety of categories. At Dvorak's home page, you will find links for travel (Travel.com, TheTrip), newspapers (e.g., USA Today), entertainment (e.g., television show schedules), and many more.

Several web sites are listed below. Of course, many others contain graphics that can be helpful for studying Locating Information.

www.census.gov	Includes the 1990 census data in table form. The site also includes projections for the 2000 census. Many of the charts are complex, which can be used for Level 5 learners. In addition, some of the charts are interconnected, making them very useful for Level 5 and 6 learners.
www.irs.gov	Includes most of the tax forms and information books published by the Internal Revenue Service. These can be especially helpful for Level 4 and 5 learners.
www.mapit.com	Allows users to download maps of specific cities, regions, or states, including driving routes.
www.mapquest.com	Allows users to download maps of specific cities, regions, or states, including driving routes.
www.travel.com	Gives information about any specified destination in the world, including airplane schedules, available hotels, rental cars, and area maps. Depending on their complexity, these can be used by learners at all Locating Information levels.

www.usps.gov	The U.S. Postal Service web site includes a variety of information, including postal rates. These can be used by Level 3 and 4 learners.

* These Internet sites were accurate at the time of printing. However, they may change over time.

Appendix C

Locating Information Testing Resources

Appendix C offers specific Locating Information assessment tools. Each item is described below.

Test-Taking Hints for Locating Information

This sheet provides learners with instructions and helpful hints for taking the Locating Information test. It should be given to learners who are taking the Locating Information test provided in this section.

Locating Information Learner's Test Response Sheet

This sheet should be used by learners to record their answers to the Locating Information test. It should be given to learners who are taking the Locating Information test provided in this section.

Locating Information Instructor's Test Answer Sheet

This sheet provides instructors with the test answers.

Learner's Test Score Summary Sheet

This chart was designed for learners. Once tests are scored, learners mark a "✓" in the appropriate box for each correct response. They mark an "**X**" in the appropriate box for each incorrect response. Then they determine their Work Keys level by tallying their incorrect responses; if two or more problems are missed at a level, their learning intervention should begin at the next *lower* level.

Locating Information Summary Sheet

Instructors can use this sheet to summarize the Locating Information test scores of learners in their classes. It can also be used to record learners' progress as they participate in learning activities and do practice problems from *Targets for Learning*.

Locating Information Test

This test can be used as a pretest, a post-test, or a practice test.

Important! This test cannot be used for employment decisions (e.g., hiring, promotion) because it has not been tested for statistical validity and reliability.

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Test-Taking Hints for Locating Information

This locating information test is shorter than the actual Work Keys test. However, the test questions reflect the learning outcomes and levels of difficulty of the Work Keys test questions.

The following suggestions will help you take Locating Information tests:

✓ *Read the instructions* carefully. Make sure you understand the directions.

✓ *Budget your time* carefully. (Don't spend so much time on one problem that you don't have time to work on others.)

✓ Be sure that you *understand how to take a multiple choice test.* There are four or five answers for each question (A, B, C, D, and E). Each answer is a possible solution. Eliminate answers that you know are wrong by crossing them out. Then you can substitute the remaining solutions into the problem to see which one fits.

✓ *Start at the beginning.* Work Keys tests start with easier problems and progress to more difficult ones. It is a competency test, so you must get the beginning problems correct in order to get credit for correct answers to the more difficult problems. For example, you must answer approximately 80% of Level 3 questions before you can be judged competent at that level. You cannot attain Level 4 until you are competent at Level 3 skills.

✓ When solving a problem, do the following:
1. *Read the question* carefully—two times.
2. Underline what you are being asked to find, fill in, summarize, compare, decide, or conclude. Ask yourself, "What am I looking for in this problem?"
3. *Scan the graphic* for needed information. (Resist the temptation to read the graphic first—this will save you valuable test-taking time.)
4. *Circle* all the relevant information on the graphic. Ask yourself, "Is this all the information I need to solve the problem?"
5. *Eliminate* one or more answers that you know are wrong. Cross them out so that you can clearly see the remaining choices.
6. *Select the correct answer.* Mark the answer sheet accordingly.
7. Once your answer is marked, don't keep changing it—your first answer is usually correct.

✓ Make a *best guess* for problems you can't figure out. (There is no penalty for guessing. Do not leave any questions unanswered.) However, guess **only** after you have tried your best to answer a question.

✓ *If you begin to feel tense, warm, nervous, and/or anxious,* **stop**! Take three or four deep breaths—inhaling slowly, then exhaling slowly. Then start again on the problem or go to the next one.

✓ Research has found that sucking on peppermint hard candies improves test performance. (It's true! Try it!)

Targets for Learning: Locating Information
Learner's Test Response Sheet

Name ____

Date ____

Circle one: Pretest Post-test Other ________________________

INSTRUCTIONS: Write the letter of the correct answer on the appropriate line below.

LEVEL 3

1. ________________
2. ________________
3. ________________
4. ________________
5. ________________
6. ________________

LEVEL 4

1. ________________
2. ________________
3. ________________
4. ________________
5. ________________
6. ________________

LEVEL 5

1. ________________
2. ________________
3. ________________
4. ________________
5. ________________
6. ________________

LEVEL 3

1. D
2. D
3. C
4. D
5. C
6. B

LEVEL 4

1. D
2. D
3. B
4. B
5. B
6. D

LEVEL 5

1. B
2. D
3. B
4. A
5. B
6. D

Targets for Learning
Learner's Test Score Summary Sheet

Use this sheet to record your responses to your Locating Information pretest or post-test. Follow the directions below to determine your Work Keys Locating Information level.

Instructions for the Learner:

1. Place a "✓" in the appropriate space for each correct response.
2. Place an "**X**" in the appropriate space for each incorrect response.
3. Tally the number of "**X**"s in each row (i.e., Level 3, Level 4, and Level 5).
4. Record the total number of "**X**"s in the appropriate space in the far-right column of each row.
5. Focusing on this far-right column, start at Level 3 and read downward until you locate the **first** box in which you have the number 2 or above. Put an asterisk (*) to the right of that box. If your asterisk is beside Level 5, skip to instruction #7.
6. Find the box **directly above** the one you marked with an asterisk. Circle it. This is the Locating Information level at which you should begin instruction. (This level is meant to correspond with your Work Keys Locating Information level.)
7. Find your Locating Information level in the list located beneath the chart. Place a "✓" beside your level.

Now you're ready to begin your Locating Information instruction. Enjoy the learning!

	Question #1	Question #2	Question #3	Question #4	Question #5	Question #6	
Level 3							____ Xs at Level 3
Level 4							____ Xs at Level 4
Level 5							____ Xs at Level 5

My Locating Information level is (check one):

_____ **Below Level 3.** Starting at *Improving to Level 3* will best meet my current learning needs.

_____ **Level 3.** Starting at *Improving to Level 4* will best meet my current learning needs.

_____ **Level 4.** Starting at *Improving to Level 5* will best meet my current learning needs.

_____ **Level 5.** Starting at *Improving to Level 6* will best meet my current learning needs.

Targets for Learning
Locating Information Summary Sheet

Instructions:

1. Write learners' names down the column on the left.
2. In the first column after each name, write each learner's Locating Information score, according to the pretest.
3. Save the spaces in the next column for post-test scores.
4. Across the top of the chart, in the spaces to the right of the label *Work Keys Post-test Level,* enter the Locating Information skills that learners should be able to do.
5. Use the spaces below the Locating Information skills to record learners' performance on the learning activities and practice problems in *Targets for Learning.* If you wish, you can record the degree to which each learner can locate information by making the following notations in the appropriate space:

IN = Learner can use Locating Information skills Independently

WA = Learner can use Locating Information skills With Assistance

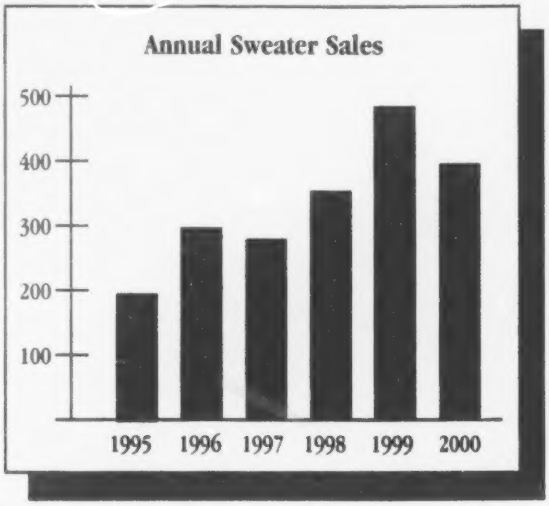
CN = Learner Can Not use Locating Information skills.

Learner's Name	**Work Keys Pretest Level**	**Work Keys Post-test Level**								

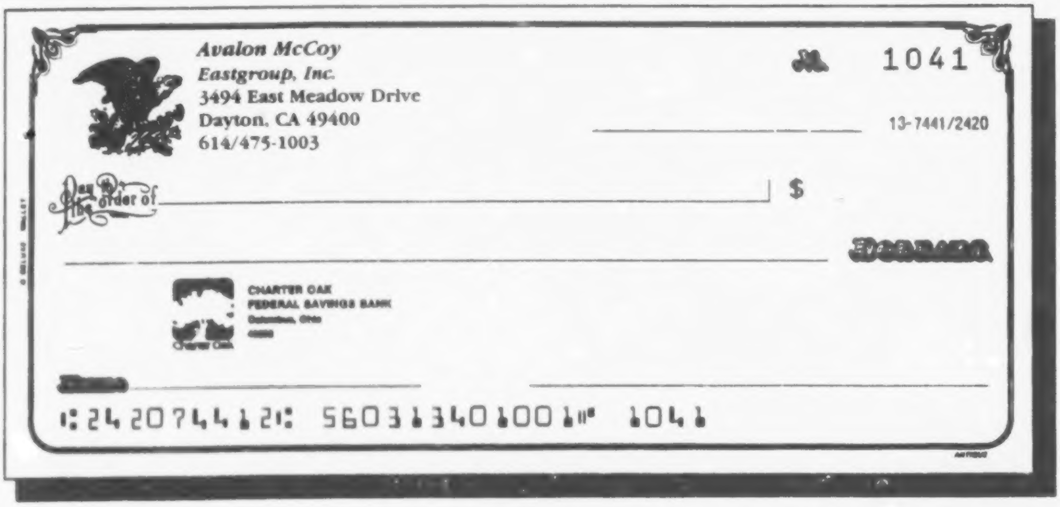
Targets for Learning: Locating Information Test

Level 3

1. You need to order sweaters for your store based on the number that were sold in the previous year. Based on the information in the following bar graph, how many sweaters should you order for 2001?
   - A. 200
   - B. 300
   - C. 350
   - D. 400
   - E. 500



2. According to the following check, what is this customer's ZIP code?
   - A. 31003
   - B. 61447
   - C. 12987
   - D. 49400
   - E. 29040



Avalon McCoy
Eastgroup, Inc.
3494 East Meadow Drive
Dayton, CA 49400
614/475-1003

1041

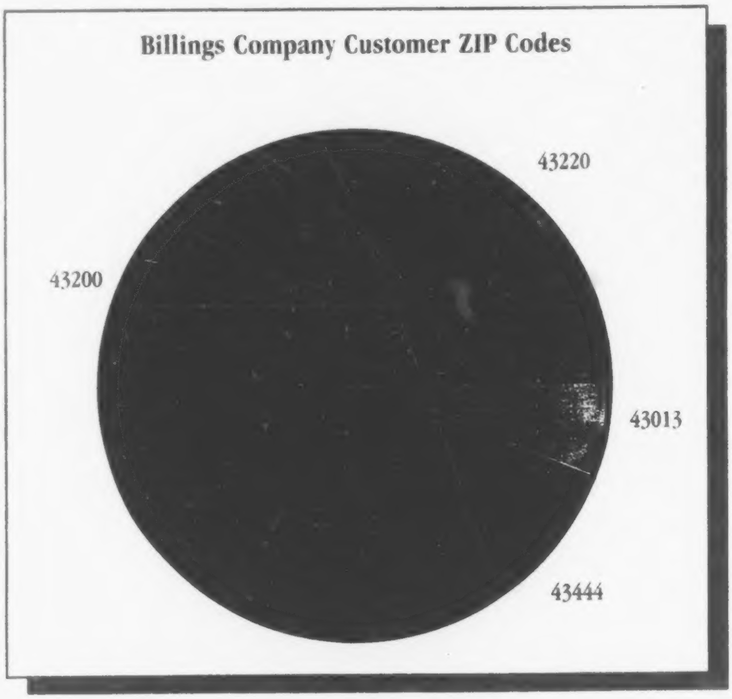
13-7441/2420

Pay to the order of $

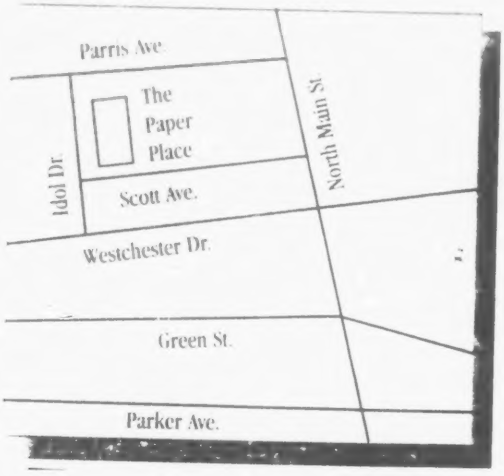
CHARTER OAK
FEDERAL SAVINGS BANK

⑆242074412⑆ 560313401001⑈ 1041

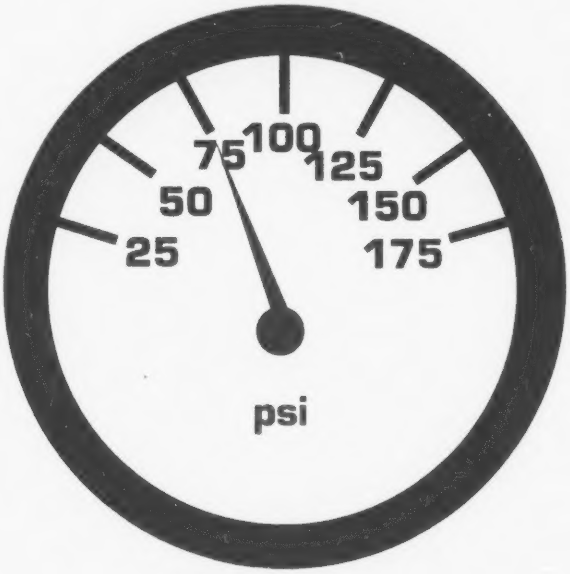
3. What percentage of the Billings Company's customers live in the 43220 zip code?
   - A. 5%
   - B. 15%
   - C. 25%
   - D. 50%
   - E. 75%



4. According to the following map, on what street is The Paper Place located?
   - A. Parris Avenue
   - B. North Main Street
   - C. Westchester Drive
   - D. Idol Drive
   - E. Green Street


Parris Ave.
The Paper Place
North Main St.
Idol Dr.
Scott Ave.
Westchester Dr.
Green St.
Parker Ave.

5. What is the pressure indicated on the following gauge?
   A. 25 psi
   B. 50 psi
   C. 75 psi
   D. 100 psi
   E. 125 psi

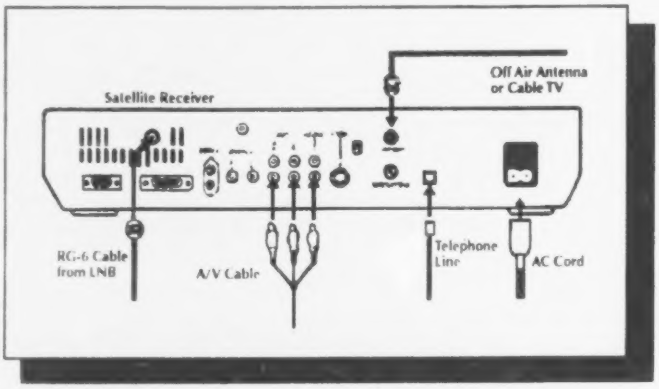


6. You need to call Mrs. Janet Smith at home. According to the chart below, what is her phone number?
   A. 949-39-5768
   B. 484-475-3993
   C. 499-68-4848
   D. 595-494-5959
   E. 475-444-4322

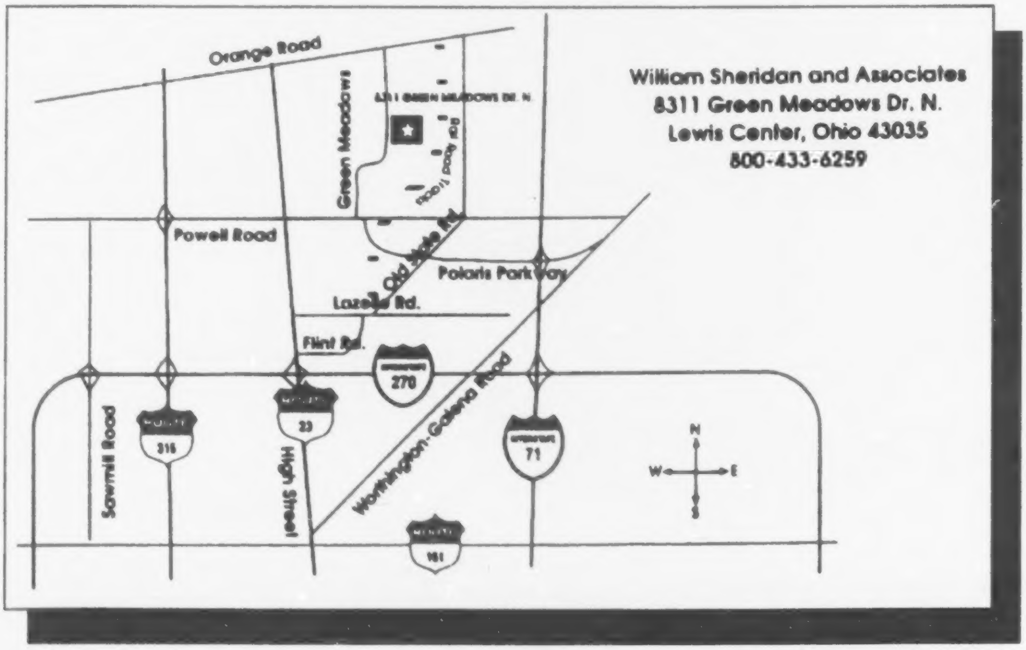
Name/Social Security Number	Address/Phone Number
John Boyd 564-55-9485	444 E. 2nd Avenue Dayton, IN 44433 475-444-4322
Mary Jane Helper 499-68-4848	8585 Hamilton Avenue Jamestown, NY 13385 595-494-5959
Janet Smith 949-39-5768	4494 Big Walnut Groveport, IN 44309 484-475-3993

Level 4

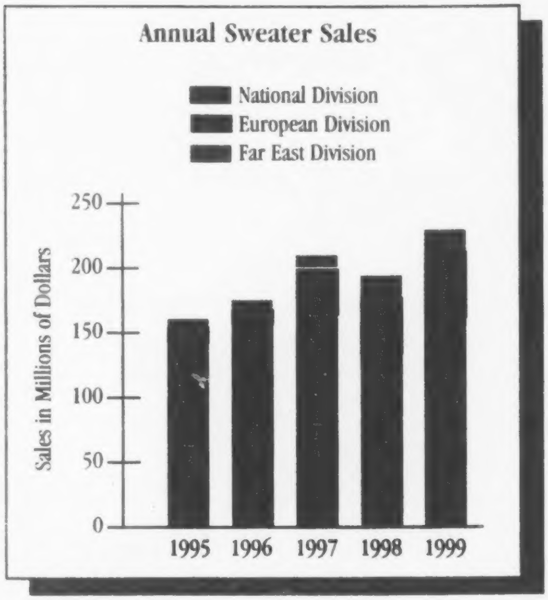
1. You are installing a Sony DSS satellite system in your building. The following diagram shows the back panel of a DSS receiver. According to the diagram, which type of line or cable does **not** plug into the receiver?
   - A. AC cord
   - B. Telephone Line
   - C. Off-Air Antenna
   - D. Sony Line
   - E. RG-6 Cable


Satellite Receiver
Off Air Antenna or Cable TV
RG-6 Cable from LNB
A/V Cable
Telephone Line
AC Cord

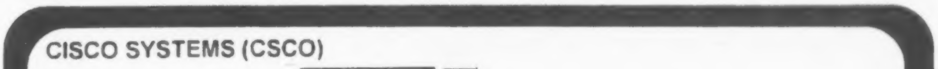
2. You need to pick up supplies at William Sheridan and Associates. What street could you take that would allow you to turn directly onto the street where Sheridan is located?
   - A. Old State Road
   - B. Sawmill Road
   - C. Flint Road
   - D. Powell Road
   - E. High Street


Orange Road
Green Meadows
8311 Green Meadows Dr. N
William Sheridan and Associates
8311 Green Meadows Dr. N.
Lewis Center, Ohio 43035
800-433-6259
Powell Road
Old State Rd.
Polaris Parkway
Lazelle Rd.
Flint Rd.
270
Sawmill Road
315
23
High Street
Worthington-Galena Road
71
161
N
W
E
S

3. According to the following bar graph, which division has shown the greatest sales growth over the five-year reporting period?
   A. National Division
   B. European Division
   C. American Division
   D. Far East Division
   E. None of the divisions showed a growth in sales.



4. You are considering buying stock in a company called CISCO Systems. You check an Internet site and find the following line graph, which shows the stock's recent performance. Is CISCO stock performing well, as compared to the NASDAQ and S&P 500 indexes?
   A. CISCO performed better than the NASDAQ and worse than the S&P 500.
   B. CISCO performed better than the NASDAQ and the S&P 500.
   C. CISCO performed worse than the NASDAQ and the S&P 500.
   D. CISCO performed worse than the NASDAQ and better than the S&P 500.
   E. CISCO's performance is not reported on this graph.



CISCO SYSTEMS (CSCO)

Symbol(s): CSCO

Period: 1-Year

Chart Type: Closing Prices

CSCO 70 3/4 + 13/16

Add to My Portfolio
[S] = Stock Split
80
60
40
20
CSCO
NASDAQ
S&P 500
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
June
July
Aug
200 M

5. According to the following holiday schedule, which day(s) will employees get off for Thanksgiving in 2001?
   - A. November 11 and 22
   - B. November 22 and 23
   - C. November 28 and 29
   - D. November 25 and 26
   - E. November 23

Human Resources Department
Holidays / Offices Closed

Holiday	1999	2000	2001	2002	2003
New Year's Day	Jan. 1, 1999	Dec. 31, 1999	Jan. 1, 2001	Jan. 1, 2002	Jan. 1, 2003
Martin Luther King Day	Jan. 18, 1999	Jan. 17, 2000	Jan. 15, 2001	Jan. 21, 2002	Jan. 20, 2003
Memorial Day	May 31, 1999	May 29, 2000	May 28, 2001	May 27, 2002	May 26, 2003
Independence Day	July 5, 1999	July 4, 2000	July 4, 2001	July 4, 2002	July 4, 2003
Labor Day	Sep. 6, 1999	Sep. 4, 2000	Sep. 3, 2001	Sep. 2, 2002	Sep. 1, 2003
Veteran's Day (observed)	Nov. 11, 1999	Nov. 10, 2000	Nov. 12, 2001	Nov. 11, 2002	Nov. 11, 2003
Thanksgiving Day	Nov. 25, 1999	Nov. 23, 2000	Nov. 22, 2001	Nov. 28, 2002	Nov. 27, 2003
Columbus Day (observed)	Nov. 26, 1999	Nov. 24, 2000	Nov. 23, 2001	Nov. 29, 2002	Nov. 28, 2003
Christmas Day	Dec. 24, 1999	Dec. 25, 2000	Dec. 25, 2001	Dec. 25, 2002	Dec. 25, 2003
President's Day (observed)	Dec. 23, 1999	Dec. 26, 2000	Dec. 24, 2001	Dec. 24, 2002	Dec. 26, 2003

6. According to the following postage rate chart, how much will it cost you to send a letter to a United States destination by certified mail with a return receipt?
   - A. $1.25
   - B. $1.40
   - C. $2.05
   - D. $2.65
   - E. $7.25

Services of the U.S. Postal Service	U.S. Rates	Foreign Rates
Insured Mail with Return Receipt	$2.05	$7.25
Certified Mail	$1.40	$6.00
Certified Mail with Return Receipt	$2.65	$7.25
Registered Mail	$6.00	$11.50
Registered Mail with Return Receipt	$7.25	$17.25

Level 5

1. You are a sales representative for a commercial lawn mower company. According to the following Lawnmower Engine Maintenance Schedule, how often should a lawn mower user located near the desert in southern Arizona change the oil?
   A. Every 5 hours
   B. Every 25 hours
   C. Every 50 hours
   D. Every 100 hours
   E. Daily

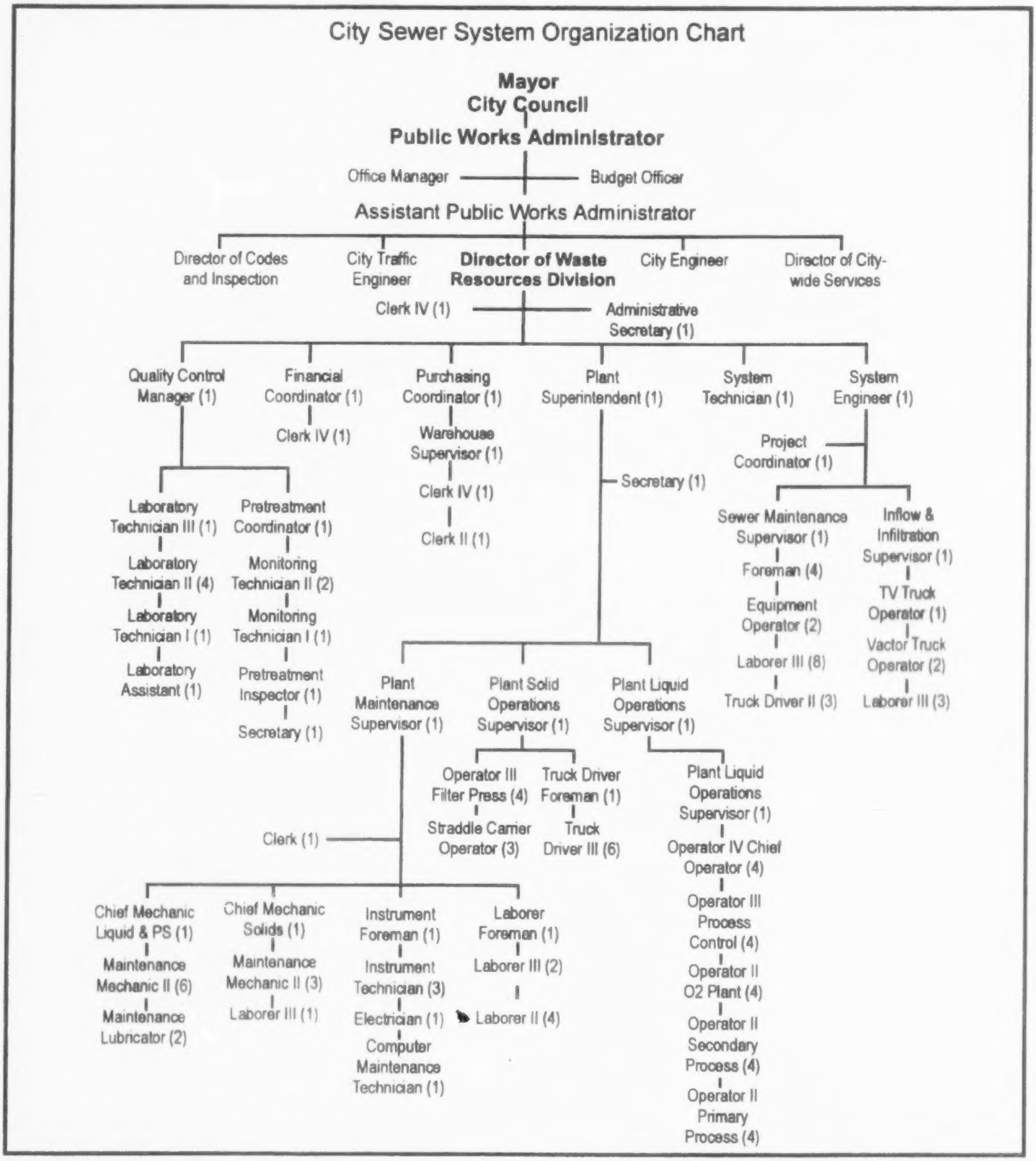
Lawnmower Engine Maintenance Schedule

Follow the hourly or calendar intervals, whichever occur first. More frequent service may be required.

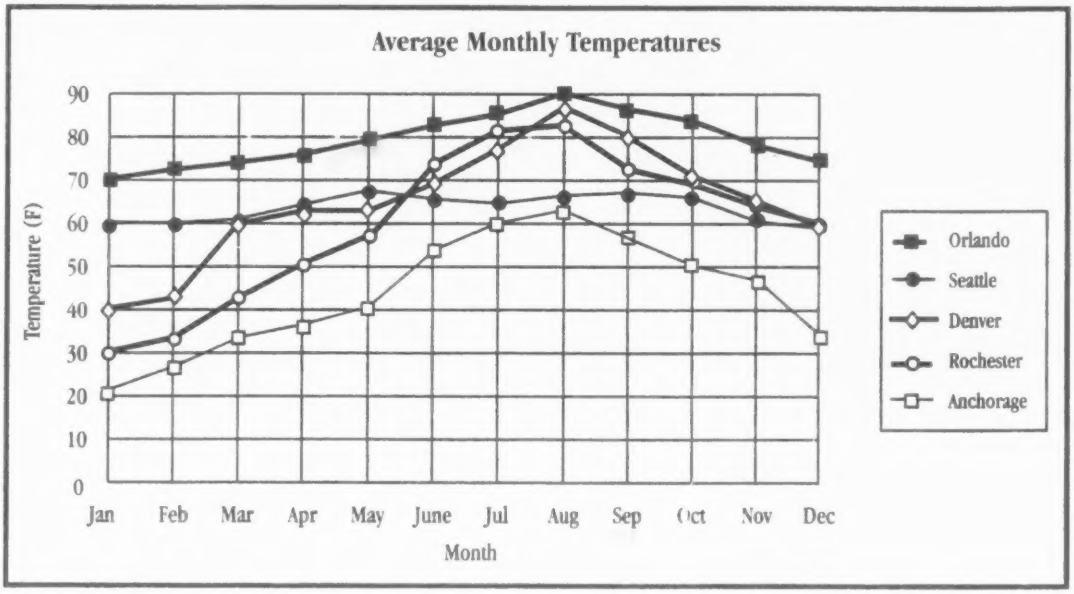
Maintenance Operation	Every 5 Hours or Daily	25 Hours or Every Season	50 Hours or Every Season	100 Hours or Every Season	100–300 Hours
Check Oil Level	X				
Change Oil*			X Note 2		
Clean Static Guard	X Note 2				
Service Air Cleaner Pre-Cleaner, if so equipped		X Note 2			
Service Air Cleaner Cartridge (if no Pre-Cleaner)		X Note 2			
Service Air Cleaner Cartridge (Pre-Cleaner present)				X Note 2	
Clean Cooling System				X Note 2	
Inspect Spark Arrester (Optional Accessory)			X		
Replace or Clean Spark Plug				X	
Clean Combustion Chamber Deposits					X

*Change oil after first 5 hours, then after every 50 hours or every season
Note 1: Change oil every 25 hours when operating under heavy load or in high ambient temperatures.
Note 2: Clean more often under dusty conditions or when airborne debris is present.

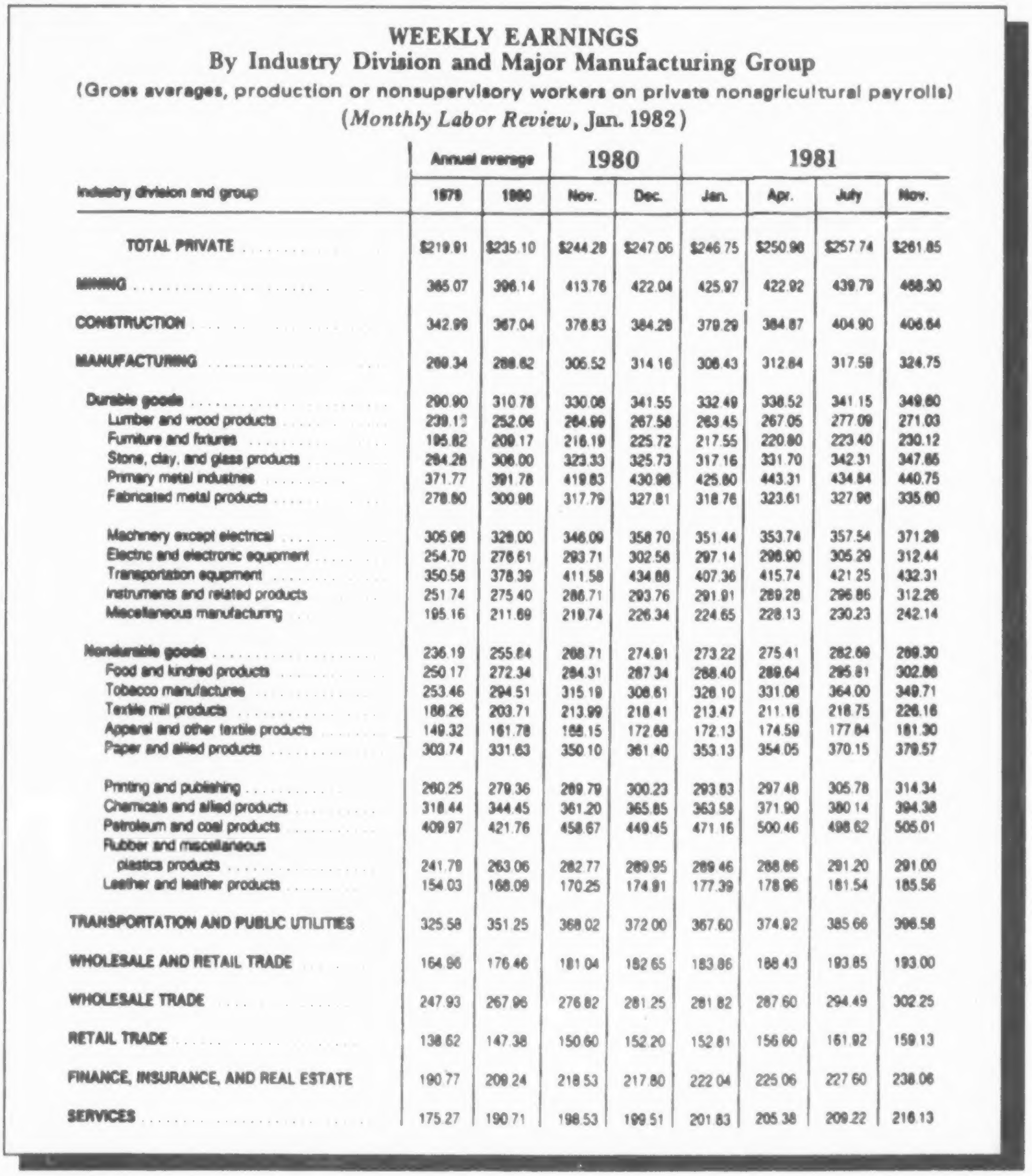
2. You manage your city's water sewer system. According the following organizational chart, how many Level III Laborers are employed?
   - A. 3
   - B. 4
   - C. 11
   - D. 14
   - E. 18


City Sewer System Organization Chart
Mayor
City Council
Public Works Administrator
Office Manager
Budget Officer
Assistant Public Works Administrator
Director of Codes and Inspection
City Traffic Engineer
Director of Waste Resources Division
City Engineer
Director of City-wide Services
Clerk IV (1)
Administrative Secretary (1)
Quality Control Manager (1)
Financial Coordinator (1)
Purchasing Coordinator (1)
Plant Superintendent (1)
System Technician (1)
System Engineer (1)
Clerk IV (1)
Warehouse Supervisor (1)
Project Coordinator (1)
Secretary (1)
Clerk IV (1)
Clerk II (1)
Laboratory Technician III (1)
Pretreatment Coordinator (1)
Laboratory Technician II (4)
Monitoring Technician II (2)
Laboratory Technician I (1)
Monitoring Technician I (1)
Laboratory Assistant (1)
Pretreatment Inspector (1)
Secretary (1)
Sewer Maintenance Supervisor (1)
Foreman (4)
Equipment Operator (2)
Laborer III (8)
Truck Driver II (3)
Inflow & Infiltration Supervisor (1)
TV Truck Operator (1)
Vactor Truck Operator (2)
Laborer III (3)
Plant Maintenance Supervisor (1)
Plant Solid Operations Supervisor (1)
Plant Liquid Operations Supervisor (1)
Operator III Filter Press (4)
Truck Driver Foreman (1)
Straddle Carrier Operator (3)
Truck Driver III (6)
Plant Liquid Operations Supervisor (1)
Operator IV Chief Operator (4)
Operator III Process Control (4)
Operator II O2 Plant (4)
Operator II Secondary Process (4)
Operator II Primary Process (4)
Clerk (1)
Chief Mechanic Liquid & PS (1)
Maintenance Mechanic II (6)
Maintenance Lubricator (2)
Chief Mechanic Solids (1)
Maintenance Mechanic II (3)
Laborer III (1)
Instrument Foreman (1)
Instrument Technician (3)
Electrician (1)
Computer Maintenance Technician (1)
Laborer Foreman (1)
Laborer III (2)
Laborer II (4)

3. According to the following line graph, which city's temperature changes most throughout the year?
    - A. Anchorage
    - B. Rochester
    - C. Orlando
    - D. Denver
    - E. Seattle



4. You have been asked to report on the history of weekly earnings from 1979 to present. According to the following Weekly Earnings chart, which statement is true?
   A. People who manufactured durable goods earned more than those who manufactured nondurable goods.
   B. People who worked in services earned less than people who worked in retail trade.
   C. People who worked in mining had a decrease in earnings.
   D. People who worked in construction earned more than people who worked in mining.
   E. People who worked in manufacturing of furniture had a decrease in earnings.



WEEKLY EARNINGS
By Industry Division and Major Manufacturing Group

(Gross averages, production or nonsupervisory workers on private nonagricultural payrolls)
(*Monthly Labor Review*, Jan. 1982)

Industry division and group	Annual average		1980		1981			
	1979	1980	Nov.	Dec.	Jan.	Apr.	July	Nov.
TOTAL PRIVATE	$219.91	$235.10	$244.28	$247.06	$246.75	$250.98	$257.74	$261.85
MINING	365.07	396.14	413.76	422.04	425.97	422.92	439.79	468.30
CONSTRUCTION	342.99	367.04	376.83	384.28	379.29	384.87	404.90	406.64
MANUFACTURING	269.34	288.62	305.52	314.16	308.43	312.84	317.59	324.75
Durable goods	290.90	310.78	330.08	341.55	332.49	338.52	341.15	349.60
Lumber and wood products	239.13	252.06	264.99	267.58	263.45	267.05	277.09	271.03
Furniture and fixtures	195.82	209.17	216.19	225.72	217.55	220.80	223.40	230.12
Stone, clay, and glass products	284.28	306.00	323.33	325.73	317.16	331.70	342.31	347.66
Primary metal industries	371.77	391.78	419.83	430.98	425.80	443.31	434.84	440.75
Fabricated metal products	278.80	300.98	317.79	327.81	318.76	323.61	327.98	335.60
Machinery except electrical	305.98	329.00	346.09	358.70	351.44	353.74	357.54	371.28
Electric and electronic equipment	254.70	276.61	293.71	302.58	297.14	298.90	305.29	312.44
Transportation equipment	350.58	378.39	411.58	434.88	407.36	415.74	421.25	432.31
Instruments and related products	251.74	275.40	286.71	293.76	291.91	289.28	296.86	312.26
Miscellaneous manufacturing	195.16	211.69	219.74	226.34	224.65	228.13	230.23	242.14
Nondurable goods	236.19	255.84	268.71	274.91	273.22	275.41	282.69	289.30
Food and kindred products	250.17	272.34	284.31	287.34	288.40	289.64	295.81	302.88
Tobacco manufactures	253.46	294.51	315.19	308.61	328.10	331.08	364.00	349.71
Textile mill products	188.26	203.71	213.99	218.41	213.47	211.18	218.75	226.16
Apparel and other textile products	149.32	161.78	168.15	172.68	172.13	174.59	177.84	181.30
Paper and allied products	303.74	331.63	350.10	361.40	353.13	354.05	370.15	379.57
Printing and publishing	260.25	279.36	289.79	300.23	293.83	297.48	305.78	314.34
Chemicals and allied products	318.44	344.45	361.20	365.85	363.58	371.90	380.14	394.38
Petroleum and coal products	409.97	421.76	458.67	449.45	471.16	500.46	498.62	505.01
Rubber and miscellaneous plastics products	241.79	263.06	282.77	289.95	289.46	288.86	291.20	291.00
Leather and leather products	154.03	168.09	170.25	174.91	177.39	178.96	181.54	185.56
TRANSPORTATION AND PUBLIC UTILITIES	325.58	351.25	368.02	372.00	367.60	374.92	385.66	396.58
WHOLESALE AND RETAIL TRADE	164.96	176.46	181.04	182.65	183.86	188.43	193.85	193.00
WHOLESALE TRADE	247.93	267.96	276.82	281.25	281.82	287.60	294.49	302.25
RETAIL TRADE	138.62	147.38	150.60	152.20	152.81	156.60	161.92	159.13
FINANCE, INSURANCE, AND REAL ESTATE	190.77	209.24	218.53	217.80	222.04	225.06	227.60	238.06
SERVICES	175.27	190.71	198.53	199.51	201.83	205.38	209.22	216.13

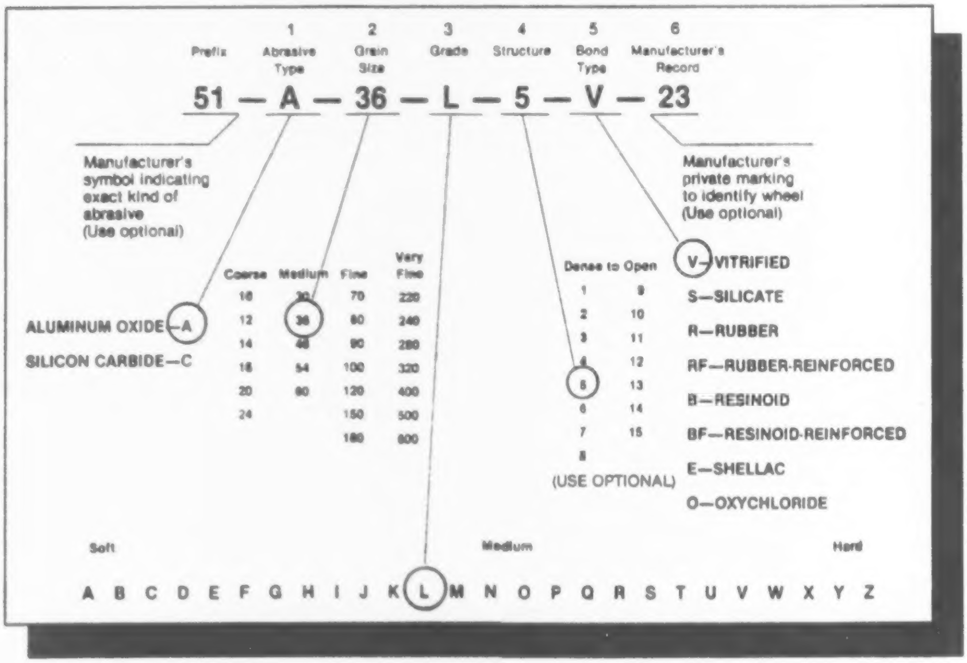
5. According to the following marking standards for identifying grinding wheels and other bonded abrasives, which statement is true about the grinding wheel on Grinder #1?

Grinder #1

Grinding Wheel Code

27-A-120-P-5-B-55

A. It is a coarse silicon carbide wheel with a dense structure and a vitrified bond.
B. It is a fine aluminum oxide wheel with a dense structure and a resinoid bond.
C. It is a medium aluminum oxide wheel with a dense structure and a resinoid bond.
D. It is a coarse aluminum oxide wheel with a dense structure and a rubber-reinforced bond.
E. It is a medium aluminum oxide wheel with a dense structure and a rubber bond.


1 2 3 4 5 6
Prefix
Abrasive Type
Grain Size
Grade
Structure
Bond Type
Manufacturer's Record
51 — A — 36 — L — 5 — V — 23
Manufacturer's symbol indicating exact kind of abrasive (Use optional)
Manufacturer's private marking to identify wheel (Use optional)
ALUMINUM OXIDE—A
SILICON CARBIDE—C
Coarse 10 12 14 16 20 24
Medium 30 36 46 54 60
Fine 70 80 90 100 120 150 180
Very Fine 220 240 280 320 400 500 600
Dense to Open
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
(USE OPTIONAL)
V—VITRIFIED
S—SILICATE
R—RUBBER
RF—RUBBER-REINFORCED
B—RESINOID
BF—RESINOID-REINFORCED
E—SHELLAC
O—OXYCHLORIDE
Soft
Medium
Hard
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

6. You live in Florida and need to ship a 26 ½-pound package to Arizona. According to the following maps and chart, how much will it cost to ship the package?
   - A. $22.85
   - B. $23.57
   - C. $25.95
   - D. $26.78
   - E. $27.33

Weight and Size Limits

Maximum weight per package .... 150 lbs.

Maximum size per package .... 130 inches in length and girth combined, with a maximum length of of 108 inches per package

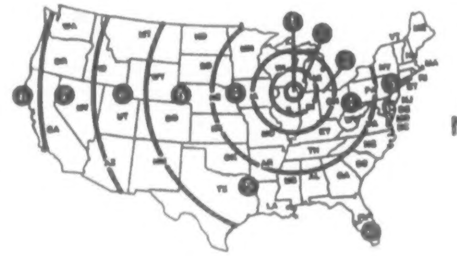
UPS 3-Day Select Rates

Guaranteed 3-day delivery!

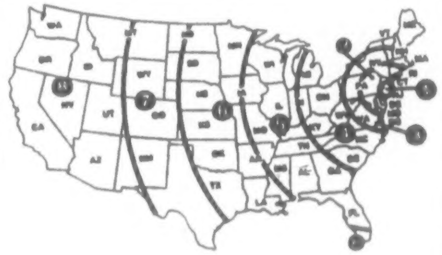
Wt.	ZONES						
Lbs.	1-2	3	4	5	6	7	8
1	$ 4.37	$ 4.39	$ 4.40	$ 4.42	$ 4.45	$ 4.47	$ 4.49
2	4.85	4.90	4.95	4.99	5.02	5.05	5.08
3	5.36	5.43	5.50	5.52	5.55	5.63	5.70
4	5.85	5.90	5.95	6.00	6.05	6.10	6.14
5	6.50	6.55	6.58	6.61	6.65	6.70	6.78
6	7.23	7.30	7.40	7.43	7.47	7.55	7.63
7	7.95	8.01	8.12	8.21	8.30	8.40	8.48
8	8.85	8.89	9.00	9.10	9.29	9.46	9.49
9	9.74	9.78	9.88	10.00	10.23	10.40	10.48
10	10.46	10.50	10.59	10.75	11.00	11.24	11.46
11	11.35	11.39	11.48	11.69	11.96	12.23	12.47
12	12.24	12.29	12.38	12.63	12.93	13.22	13.48
13	12.95	13.02	13.12	13.39	13.72	14.04	14.32
14	13.75	13.85	13.95	14.33	14.69	15.03	15.33
15	14.50	14.60	14.70	15.10	15.50	15.84	16.17
16	15.10	15.13	15.30	15.92	16.20	17.12	17.34
17	15.71	15.88	16.05	16.85	17.14	18.13	18.47
18	16.40	16.58	16.77	17.61	17.92	18.96	19.32
19	17.09	17.28	17.49	18.36	18.70	19.79	20.17
20	17.96	18.15	18.37	19.30	19.65	20.80	21.20
21	18.66	18.86	19.09	20.06	20.43	21.63	22.05
22	19.52	19.73	19.97	20.99	21.38	22.64	23.06
23	20.22	20.43	20.69	21.75	22.16	23.47	23.93
24	20.92	21.14	21.41	22.51	22.93	24.30	24.78
25	21.61	21.84	22.12	23.27	23.71	25.13	25.63
26	22.30	22.54	22.85	24.03	24.49	25.95	26.48
27	23.00	23.25	23.57	24.79	25.26	26.78	27.33
28	23.68	23.96	24.28	25.55	26.04	27.61	28.17
29	24.37	24.66	25.00	26.31	26.82	28.44	28.95
30	25.07	25.36	25.72	27.08	27.61	29.28	29.89
31	25.76	26.07	26.46	27.85	28.40	30.11	30.70
32	26.45	26.78	27.18	28.62	29.19	30.96	31.55
33	27.14	27.49	27.91	29.39	29.98	31.79	32.46
34	27.83	28.20	28.63	30.14	30.76	32.63	33.32
35	28.52	28.91	29.34	30.91	31.54	33.47	34.18
36	$29.21	$29.62	$30.06	$31.67	$32.32	$34.29	$34.90
37	29.90	30.33	30.79	32.43	33.10	35.13	35.68
38	30.57	31.03	31.50	33.19	33.88	35.95	36.60
39	31.26	31.73	32.22	33.95	34.66	36.79	37.58
40	31.95	32.43	32.94	34.71	35.43	37.62	38.43
41	32.63	33.14	33.66	35.47	36.21	38.45	39.28
42	33.32	33.84	34.38	36.23	36.99	39.27	40.13
43	34.01	34.55	35.10	36.99	37.77	40.11	40.90
44	34.70	35.26	35.82	37.75	38.55	40.93	41.75
45	35.38	35.96	36.54	38.51	39.33	41.76	42.68
46	36.08	36.67	37.26	39.28	40.11	42.60	43.53
47	36.76	37.37	37.97	40.03	40.89	43.43	44.38
48	37.44	38.07	38.69	40.80	41.66	44.25	45.22
49	38.12	38.76	39.41	41.55	42.42	45.08	46.06
50	38.81	39.45	40.11	42.30	43.17	45.89	46.89
51	39.48	40.14	40.80	43.02	43.91	46.68	47.70
52	40.15	40.81	41.48	43.73	44.64	47.44	48.47
53	40.65	41.32	41.99	44.27	45.18	48.01	49.05
54	41.15	41.82	42.50	44.81	45.72	48.59	49.63
55	41.65	42.33	43.01	45.34	46.26	49.17	50.20
56	42.15	42.83	43.52	45.88	46.79	49.73	50.78
57	42.65	43.34	44.02	46.41	47.33	50.30	51.35
58	43.15	43.84	44.53	46.94	47.86	50.88	51.93
59	43.66	44.35	45.04	47.48	48.40	51.45	52.50
60	44.16	44.85	45.55	48.01	48.94	52.02	53.08
61	44.66	45.35	46.06	48.55	49.48	52.59	53.66
62	45.16	45.85	46.57	49.09	50.02	53.17	54.23
63	45.67	46.35	47.08	49.62	50.56	53.74	54.81
64	46.17	46.85	47.59	50.15	51.09	54.32	55.39
65	46.67	47.35	48.10	50.69	51.63	54.89	55.96
66	47.17	47.85	48.61	51.23	52.17	55.46	56.55
67	47.67	48.35	49.11	51.76	52.70	56.04	57.12
68	48.17	48.85	49.62	52.30	53.24	56.61	57.70
69	48.67	49.35	50.13	52.84	53.78	57.19	58.28
70	49.17	49.85	50.64	53.37	54.31	57.76	58.86

ANY FRACTION OF A POUND OVER THE WEIGHT SHOWN TAKES THE NEXT HIGHER RATE

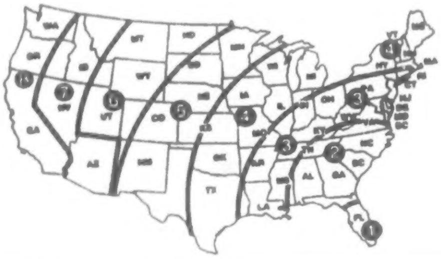
Prices subject to change without notice.



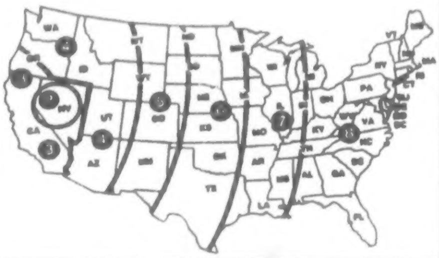
Northbrook, Illinois Zones



Lakewood, New Jersey Zones



Orlando, Florida Zones



Reno, Nevada Zones